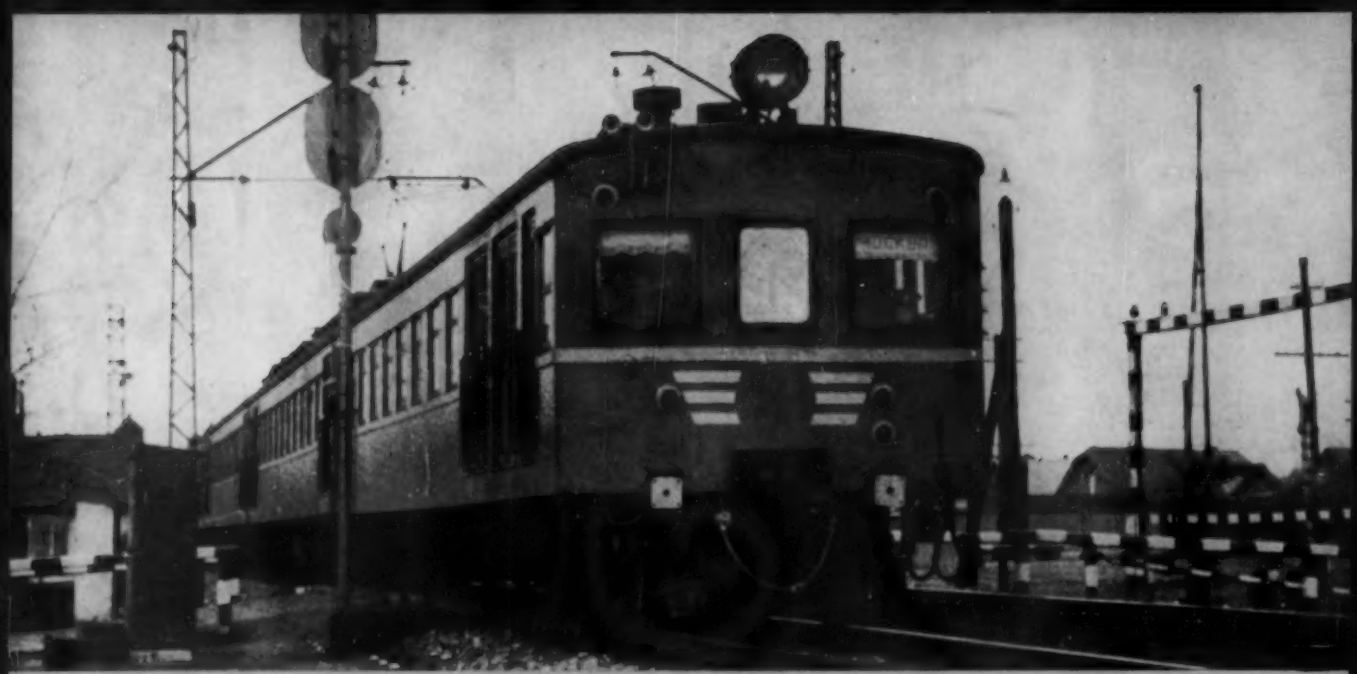
How Unions Can Get on RR Team...p 38

August 1, 1960

RAILWAY AGE *weekly*



FIRST REPORT:

What U. S. Team Saw in Russia

R COMP
EDITORIAL DEPT
UNIV MICROFILMS INC
313 N FIRST ST
ANN ARBOR MICH

60 cents A Simmons-Boardman TIME-SAVER Publication

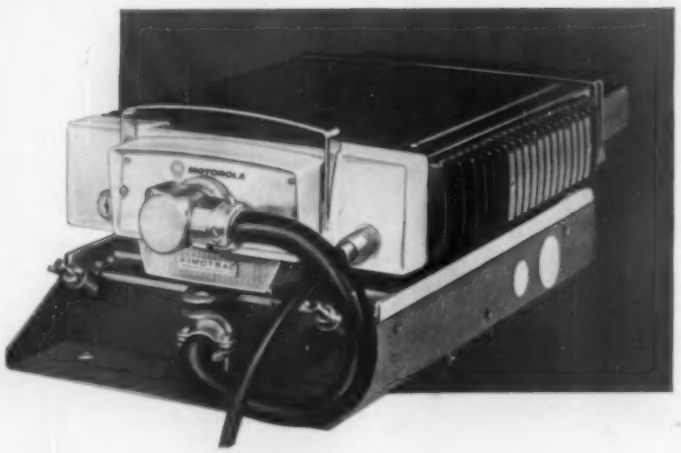
Flip a switch... use 64/12 volt

MOTOROLA MOTRAC RADIO

in ENGINE...CABOOSE...BASE STATION

- **NO NEED TO CHANGE POWER SUPPLY, one radio serves both 64 and 12-volt DC applications.**
- **No radio modification required for base station use—AC-to-DC Adapter permits for operation from 117-volt, 60 cycle current.**

Mounts in standard AAR single unit rack.



Now, new flexibility . . . new time and money savings can be yours when you standardize on one basic radio to serve all of your operational needs. The Motorola MOTRAC Railroad Radio can be used in the engine from 64-volt DC power . . . in the caboose from the 12-volt DC power . . . and in base station applications from 117-volt AC power with adapter.

HERE ARE THE FACTS:

MOTRAC radio eliminates the common maintenance problems. No tubes in the receiver and no vibrators in the power supply.

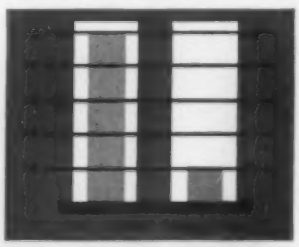
- Voltage changeover switch is readily accessible to authorized railroad personnel—voltage may be switched from outside of housings, yet is protected from inadvertent switching.
- All components are in one "package" with common metering sockets readily accessible—operation can be tested quickly with present Motorola test equipment.
- Polarity protection assures against damage to radio if primary voltage of wrong polarity is applied.
- Completely enclosed housing provides maximum protection from dust, dirt and water.

In Motorola MOTRAC Railroad Radio, every attribute of the transistor—reliability, light weight, compactness, reduced maintenance and operating costs—are initially and fully realized.

THE RESULT: ***Reliability*** never before achieved in railroad communications.

All the facts are as close as your nearest Motorola Railroad Communications Representative. Call him today.

POWER SUPPLY—*The first* to provide dual voltage with proven transistor reliability. This dynamic new concept in a railroad transistorized power supply is accomplished through the use of series transistor switching circuits. The series circuit design allows greater safety margin since only low voltages are applied to power transistors—heat producing voltage dropping resistors are eliminated. **VOLTAGE REGULATION** feature assures constant operating voltages—longer transmitter tube life . . . stable receiver performance. **OVERLOAD PROTECTION** automatically removes radio from the primary power in the event that overloads or short circuits occur.



RECEIVER—With transistors, power consumption is cut 80% and operating temperatures are reduced up to 40°F. *Rugged die-cast chassis* and the use of dependable printed circuitry are among the industry's most advanced design features.

TRANSMITTER—Proven Motorola design uses only five tubes—with only three different tube types. This means valuable time and money savings—minimum tube replacement problems. External heat sinks assure maximum component service and efficiency.

MOTOROLA MOTRAC RAILROAD RADIO

Motorola Communications & Electronics, Inc. • A Subsidiary of Motorola Inc., 4501 Augusta Blvd., Chicago 51, Ill. • SPaulding 2-6500

MOTRAC is a trademark of Motorola, Inc.

Bethlehem roof bolts clamp rock strata together to improve the safety in this railroad tunnel.

Keeping the roof safe

The proved way to make your roof sound—and keep roof falls to a minimum—is to install bolts in the correct pattern for local conditions. This includes both stratified and massive rock formations.

Who figures this out? Who works right along side your team during the installation? Who checks back, at specified periods, to test and inspect? Your Bethlehem contact man. He'll come see you. Just tell us where and when.

Steel

for Strength
... Economy
... Versatility

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.
Export Distributors: Bethlehem Steel Export Corporation

BETHLEHEM STEEL

BETHLEHEM STEEL

"Railroads must mechanize to remain competitive"

says Mr. E. Frederic Uhrbrock, Jr., Railroad Security Analyst, Bear, Stearns & Company

Portrait by Editta Sherman

"Full benefit of diesel operation cannot be realized without complete automation of yards and CTC installations. Modern tools are essential for profitable operation."

This prominent analyst put his finger on the most important word in the future of the railroad industry—*automation*. It's the practical way that the industry can expand its operation, while it reduces operating costs.

Roads with CTC and automatic classification yards have reported a 30 to 40% return on their investment. Contact Union Switch & Signal for the latest facts on traffic control and classification yard systems.

"Pioneers in Push-Button Science"

UNION SWITCH & SIGNAL
DIVISION OF WESTINGHOUSE AIR BRAKE COMPANY
SWISSVALE, PENNSYLVANIA
NEW YORK... PITTSBURGH... CHICAGO... SAN FRANCISCO

RAILWAY AGE *weekly* August 1, 1960 • Vol. 149, No. 5

Week at a Glance

Departments

Current Questions 32
Editors Afield 34
Freight Carloadings 31
New Equipment 31
People in the News 35
Railroading After Hours 27
Railway Market 31
Supply Trade 35
The Action Page 38
Watching Washington 10
You Ought to Know 36

• Editorial and Executive Offices New York 7, 30 Church St.

JAMES G. LYNE, Editor
ROBERT G. LEWIS, Publisher
Executive Editor.....Joe W. Kizzia
Managing Editor.....Fred C. Miles
News Editor.....Luther S. Miller
Traffic-Transportation...G. C. Hudson
Mechanical
C. L. Combes F. N. Houser, Jr.
Signaling & Communications
Robert W. McKnight Robert J. Barber
Associate Editors
Rod Craib Harry M. Grayson, Jr.
Librarian.....Edith C. Stone
Editorial Assistant.....June Meyer
Art Director.....Russell F. Rypsam
Design and Layout....Joel Petrower
Director of Research...J. W. Milliken
Production Manager..Joseph J. Mankes

• Chicago 3, 79 West Monroe St.
Western Editor.....Gus Welty
Regional News.....William V. Tuite
Mechanical.....Norman E. Gillespie
Engineering.....M. H. Dick
R. E. Dove E. W. Hodgkins, Jr.
Purchases & Stores.....Bert Enos
Editorial Assistant.....Wanda Brown

• Washington 4, National Press Bldg.
Washington Editor....Walter J. Taft

Railway Age, established in 1856, is indexed by the Business Periodicals Index, the Engineering Index Service and the Public Affairs Information Service. Name registered in U.S. Patent Office and Trade Mark Office in Canada.

Published weekly by the Simmons-Boardman Publishing Corporation at 440 Boston Post Road, Orange, Conn. Second-class postage paid at the Post Office at Orange, Conn. James G. Lyne, chairman of the board; Arthur J. McGinnis, president and treasurer; Duane C. Salisbury, executive vice-president; George Dusenbury, vice-president and editorial and promotion director; Robert G. Lewis, Joe W. Kizzia, M. H. Dick, M. J. Figa, R. C. Van Ness, vice-presidents.

Russian railroads: A U. S. view ..... p. 9

Back from an extensive tour of USSR rail facilities, eight U. S. railroaders reported last week on what they saw and heard behind the Iron Curtain. Here's their "Russian notebook."

C&O balks at 3-way merger p.15

The time isn't ripe, President Walter Tuohy insists, for a C&O-B&O-NYC union. He thinks a C&O-B&O alliance would be "a practical step leading to realistic consideration of three-way affiliation." Chiefs of the three roads are scheduled to get together Aug. 15.

N&W has no hotboxes with flat-back bearings p.18

Test results also indicate the bearings will have a long service life, that they are economical and easily maintained. They are being tested in freight service by about 20 railroads. The AAR has authorized their application to 6,000 freight cars in interchange service.

GOP backs 'integrated transport' p.27

The 1960 Republican platform calls for the promotion of "safe, efficient, competitive and integrated transport by air, road, rail and water under equitable, impartial and minimal regulation."

Santa Fe modernizes a drafting layout p.28

The road revamped its central drafting room in Los Angeles and is reaping the benefit of improved employee morale and greater productivity. The new equipment installed is said to make the room one of the most modern layouts of its kind in the railroad industry.

C&NW tests tanker TOFC p.33

Tentative approval for piggyback handling of tank-truck trailers loaded with "restricted" liquids has come following tests made by the railroad in conjunction with the AAR Bureau of Explosives.

The Action Page—How unions can get on the RR team p.38

Railroad employees, like railroads themselves, are up against the competition of other forms of transportation. This competition can be met most effectively when railroad management and labor work together. Such a relationship involves acceptance by each partner of his share of the responsibility to do the things necessary to enable the business to prosper.

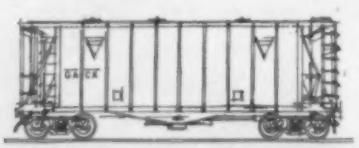
Let Our Tests Prove That Bulk Shipping Via AIRSLIDE® and DRY-FLO® Cars is Right For Your Product

When General American "okays" a product for shipment in AIRSLIDE and DRY-FLO cars, you know that you are getting the best and most economical method of bulk transportation. In its laboratories, General American investigates the flow properties of dry, powdered and granular materials, then if further assurance is necessary, test cars are available for checking performance under actual railroad conditions.

The first time you use these cars, experts are at your service to supervise the initial unloading and show your men the techniques for quick and efficient operation.

As a further service, General American maintains shops throughout the country, staffed by skilled technicians to ensure maximum "in-service" mileage for your AIRSLIDE and DRY-FLO cars.

It pays to plan with General American.



AIRSLIDE® AND DRY-FLO® CAR DIVISION

AIRSLIDE GENERAL AMERICAN TRADE MARK

GENERAL AMERICAN TRANSPORTATION CORPORATION

135 South LaSalle Street • Chicago 3, Illinois
Offices in principal cities
In Canada: Canadian General Transit Co., Ltd., Montreal

Week at a Glance (Cont.)

Current Statistics

Operating revenues	
5 mos., 1960 ...	$4,064,090,155
5 mos., 1959 ...	4,125,693,993
Operating expenses	
5 mos., 1960 ...	3,195,545,311
5 mos., 1959 ...	3,229,846,918
Taxes	
5 mos., 1960 ...	450,170,907
5 mos., 1959 ...	438,663,308
Net railway operating income	
5 mos. 1960 ...	273,263,468
5 mos., 1959 ...	324,315,344
Net income estimated	
5 mos., 1960 ...	195,000,000
5 mos., 1959 ...	234,000,000
Carloadings revenue freight	
28 wks., 1960 ..	16,753,162
28 wks., 1959 ..	17,405,774
Freight cars on order	
July 1 1960 ..	29,555
July 1, 1959 ..	40,973
Freight cars delivered	
6 mos., 1960 ...	31,402
6 mos., 1959 ...	18,272

●

Advertising Sales Department

Duane C. Salisbury—director of sales

New York 7, N. Y., 30 Church St.,
WOrth 4-3060
J. S. Vreeland—vice president;
F. T. Baker—district manager;
J. C. Luddy—district manager

Chicago 3, Ill., 79 W. Monroe St.,
RAndolph 6-0794
J. R. Thompson—vice president;
J. W. Crossett—district manager;
Hale Carey

Cleveland 15, Ohio, 1501 Euclid Ave.,
MAin 1-4455
H. H. Melville—vice president;
H. M. Blunt—district manager

Pittsburgh 19, Pa., Suite 203, Carlton House
GRant 1-8186
C. J. Fisher—district manager

Atlanta 9, Ga., 22 Eighth St., N. E.,
TRinity 2-6720—J. S. Crane

Dallas 19, Tex., 3915 Lemmon Ave.,
LAkeside 1-2322—Joseph Sanders

Los Angeles 17, Cal., 1151 W. 6th St.,
HUntley 2-4000
Fred Klaner, Jr.
David S. Clark

San Francisco 11, Cal., 916 Kearney St.
GArfield 1-7004
Lewis A. Vogler

Portland 5, Ore., Terminal Sales Bldg.,
CApitol 7-4993
Peter W. Klaner

London S. W. 1, England
38 Victoria St.,
Max P. Holsinger

Dusseldorf (Altstadt), Germany
29 Hunsrücker Strasse
Max P. Holsinger

Tokyo, Japan
Shadan Hojin, 14
2-Chome Marunouchi
George E. Olcott

Railroad employees' subscription rate: in U.S. possessions, Canada and Mexico, $4 one year, $6 two years, payable in advance and postage paid. To railroad employees elsewhere in the western hemisphere, $10 a year. In other countries, $15 a year. Single copies 60¢ except special issues. Address all subscriptions, changes of address, and correspondence concerning them to: Subscription Dept., Railway Age, Emmett St., Bristol, Conn.

Change of address should reach us three weeks in advance of next issue date. Send old address with new, enclosing, if possible, your address label. Post Office will not forward copies unless you provide extra postage.

Circulation Dept.: R. C. Van Ness, Director of Circulation, 30 Church St., New York 7, N. Y.

POSTMASTER—SEND FORM 3579 to EMMETT ST., BRISTOL, CONN.

Printed at the Wilson H. Lee Co., Orange, Conn.

Short and Significant

Canadian National shippers . . .

are going to have a bigger voice in deciding when and where the road will run its trains. In an effort to tailor service more closely to shippers' needs, CNR is assigning responsibility for both marketing and operation of transportation services to the office of the executive vice president. The road is abolishing the office of vice president—operation and changing the position of vice president of traffic to vice president of sales. At the same time, CNR is putting increased emphasis on market research and freight sales development. (See page 35.)

Government guaranty of loans totaling $3,000,000 . . .

is being sought by the Chicago & Eastern Illinois in an application filed with the ICC. The loans would reimburse the road's treasury for additions and betterments.

Hearings on the accident reports bill (S.1964) . . .

will be held by the House Commerce Committee beginning Aug. 17. The measure, which is supported by railway unions, would require that railroads report to the ICC all accidents resulting in death of employees, or in injuries that would idle employees for 24 hours, and all accidents resulting in physical damage to rail property.

Five railroad executives have been named . . .

to the Transportation and Communication Committee of the Chamber of Commerce of the U.S. for 1960-61. They are Western Maryland President W. Arthur Grotz; Railway Express Agency President William B. Johnson; Northern Pacific President Robert S. Macfarlane; Lackawanna President P. M. Shoemaker; and Atlantic Coast Line Chairman A. Lee Wiggins.

Shift of high-value traffic . . .

from common carriers to unregulated channels was branded a "disturbing trend" by Commissioner Laurence K. Walrath of the ICC before the 66th annual convention of the International Apple Association, Inc. He said new evasive shipping systems come into being "almost while the ink dries" on decisions that have made others illegal.

ICC has approved . . .

a $2,000,000 loan guaranty for the Norfolk Southern, provided the road puts up security in the form of (a) $2,000,000 in first mortgage bonds, or (b) a second mortgage on all its property, subject to a lien on its first mortgage. NS had sought an unsecured loan guaranty.

✓ *Here's* **STANDARD'S** *responsibility to the railroads at work...*

Now, **SIDE LINING** joins Standard's Line-Rite team!

Side Lining and End Lining slash maintenance costs and out-of-service time!

Line-Rite Side Lining is a rolled, steel slat type bar designed to provide an alternate wood and steel face to the interior of the lading compartment. Dovetailed metal sockets lock each board positively and securely in place. Flanges give added support to the inserts. Side Lining is *four times stronger* than ordinary wooden lining . . . affords greater protection from excess condensation than all metal linings. This new construction provides strong protection from damage by fork lift trucks and tractors. You reduce maintenance costs, out-of-service time and shipper inconvenience . . . you'll have more cars available for high class lading. Yet Side Lining is easily installed, adaptable to any size car and does not add severe weight penalties. Wall coverage and location of lading anchors are to your specifications.

Line-Rite side lining is assembled by placing the bottom slat against the side wall at the desired height and welding studs to side posts using the slat as a welding jig. The front board is then placed in the dovetailed metal sockets, then the next slat is assembled to the side wall.

Line-Rite side lining provides for the replacement of any board without disturbing the balance of lining.

STANDARD RAILWAY EQUIPMENT
division of STANRAY CORPORATION
HAMMOND, INDIANA • NEW YORK • CHICAGO • SAN FRANCISCO

USSR Tour Highlights U.S. Team's European Inspection Trip

Last week an eight-man team of U.S. railroad officers arrived in New York after a seven-week, 6,500-mile inspection trip of Russian and West European railroads.

The trip, sponsored by the AAR and arranged through the State Department, was made under an exchange program signed last fall between the U.S. and Russia. A Russian delegation is expected to visit the U.S. this fall.

The group that returned last week spent most of its time in the USSR, arriving in Moscow by train from Warsaw on May 30. On their homeward trip, the U.S. officers inspected railroads in France, Italy, Switzerland, West Germany, Belgium, Holland and England.

Six hours after arrival in New York, the delegation, headed by AAR Vice President C. D. Buford, held a press conference to report what they saw and heard in visits to 14 major railroad centers in Russia. Mr. Buford served as spokesman for the group, but the following report includes observations from other members as well.

The seven officers who accompanied Mr. Buford were William M. Keller, vice president—research, AAR; John F. Nash, vice president—operations, NYC; Paul V. Garin, manager of research and development, SP; Sergei G. Guins, assistant to the research director, C&O; John W. Horine, electrical engineer, PRR; Frank E. Woolford, chief engineer, WP, and Lowell B. Yarbrough, superintendent of signals and communications, Wabash.

The group will prepare a detailed report on its findings for submission to the AAR in the fall. Meanwhile, their first observations appear below and on following pages.

Russian Railroads: A U.S. View

Rolling Stock—Exact size of the Soviet freight car fleet is unknown. They consider that information "classified."

They still operate a lot of two-axle cars, but they're working to replace these with larger four-axle and six-axle units. In the trains we saw, about 50 to 60% of the cars were four-axle; they claim, however, that they're about 70% equipped with these bigger cars.

With the possible exception of West Germany, Russia seems to be the only European country going to larger cars. But what the Russians want is capacity. They're also switching to the automatic coupler. Outside buffers, which are standard in the rest of Europe are coming off, though they still have many of them now. Their standard coupler is very close to U.S. design, a slightly modified Willison.

They have almost no specialized equipment as we know it. Everything is handled in standard cars. They've gone a long way toward standardization. They have boxes, gons, flats, hoppers, tanks and reefers in their car fleet. Their new 90-ton hopper and their latest design tank car is first class.

Maintenance seems to be pretty good, on the whole. Trucks and running gear on the 4-axle cars are well maintained. We noticed some car bodies that were in poor condition, however. They do have hotboxes, too; we saw six setouts in one yard. They have roller bearing cars, but not many. Their plan is to have all other cars equipped with pads by the end of this year. They talk of having all roller bearing cars by 1965, but it's hard to see how they will make that.

Their newest box car is largely wood: a combination of wood and steel. And they're working on mechanical refrigeration. One idea they have now is a 26-car integrated setup, with a power car and coolant circulating in a single piping system through 25 cars.

Passenger equipment is considerably behind U.S. We saw no air conditioning anywhere. We traveled in an 8-room car, two per room, with each two rooms sharing a washstand. Toilet facilities are at the end of the car. Seats were upholstered, but springs rather hard. And this equipment, we were told, is what they call their "soft transportation." Passenger cars are equipped with individual heating equipment and boilers.

Passenger fares are related to equipment, in that when you buy a ticket you merely buy a ride; a bench-type seat costs extra, upholstered individual seat still more, and so on up through sleeper. The basic fare is on a standard train (local), and express service costs extra. This buying only the ride is probably why people sometimes ride on the roofs of cars—in their slang they're called "flyers."

Each railroad chief—there are 35 "railroads"—has a business car. These are not like ours at all. They seem more like a place to eat and sleep in smaller towns that lack hotel facilities, rather than for use in inspecting roadway and work like that.

Operations—They don't have, or use, an operating ratio in the sense we do in the U.S. Costs are figured differently, and they look at the ratio of operating expense to total expense. Revenues don't enter into it.

Trains operate at only moderate speeds generally. Passenger trains, for example, average around 27 mph.

They have a good many hump yards but no fully automatic ones. We saw only one retarder with automatic control in the entire trip. The general efficiency of their humping operations is not up to U.S. standards, but it must be borne in mind that service, as we know it, is of less importance in Russia. Our facilities are more advanced technically and can do a better job.

Because they have all the business they can handle on many lines, and they operate shorter trains, they space their trains for a balanced flow into the terminals. They avoid bunching, which can't always be done in the U.S. Soviet railroads, of course, are strongly controlled from the top, and are pretty militaristic in many ways.

They have a peculiar relationship with their "shippers." In Russia the oppor-

(Continued on page 14)

Southern Drops Rules Demands

In a surprise move last week, the Southern Railway withdrew the Section 6 notices it served last November on the various operating organizations concerning basis of pay and assignment of crews. The Southern's proposal to eliminate firemen will be progressed jointly with other railroads by the Carriers' Conference Committee, although the road will no longer be represented in negotiations on other featherbedding issues.

Guy L. Brown, retiring BLE chief, hailed SR's withdrawal from the industry bargaining team as "a break in a united stand that we don't agree with." He added, "I hope more railroads will depart from the stand of the Carriers' Conference Committee on the study commission on rules and indicate that they will make a more realistic approach to the proposal of the employees' organizations."

In a stalemated preliminary discussion July 6 between the carriers and union representatives, the carriers turned down a union proposal to submit the problem to a wage structure study commission composed of management and labor representatives and including non-partisan members.

Carrier representatives countered the union proposal by offering to submit the bargainable points at issue to arbitration with the promise of settlement binding on both parties. The unions rejected this offer and in a subsequent exchange of letters both sides agreed to begin negotiations on the carriers' rule change demands on Sept. 7 in Chicago.

Industry observers failed to see any evidence of a break in the carriers' case as a result of Southern's defection.

A management spokesman said that he was sorry to see the Southern adopt this course of action but that the development would in no way affect pursuance of the work rules negotiations.

Said the Southern: "We did it because Southern's best interests will be served."

Further clouding the scheduled start of industry-level talks on the rules fight is the possibility of a delaying conflict over handling of the Section 6 notice served on the BLF&E calling for elimination of firemen on yard and road freight diesels.

The Railway Labor Act spells out

(Continued on page 34)

Watching Washington *with Walter Taft*

Mr. Taft is on vacation. During his absence, this column is being written by other members of the staff.

• **MAIL PAY INCREASE** is being sought by 21 eastern railroads. Applicants include practically all of the Class I roads in the Eastern District and the Pocahontas Region that handled mail in 1959. These roads accounted for 42.6% of the 1959 mail revenue of all Class I railroads in the U. S., and for 96.2% of such revenue in their districts.

PRESENT MAIL RATES, the application to the ICC contends, "fail to provide fair and reasonable compensation to which applicants are entitled by virtue of 39 U.S. Code Section 541 for performing the service." Blamed for mounting expenses are increases in wages, payroll taxes and other costs.

LAST INCREASE in mail pay rates was granted most of the applicants in 1958 and the record in that proceeding related to the level of costs as of Nov. 1, 1957. The applicants now ask that the Commission "fix and determine as fair and reasonable for the transportation by applicants of the United States mail and their performance of the service connected therewith . . . rates and compensation which shall reflect the full cost of performing such service."

• **THE NIT LEAGUE** has asked the ICC to deny a petition filed by railroads in Official Territory for reconsideration of, and oral arguments on, the Commission's decision in Ex Parte No. 73, Regulations for Payment of Rates and Charges. The ICC's decision modified credit regulations to give railroads permissive authority to allow a maximum of 120 hours, instead of the present 96-hour allowance, for payment of carload charges. The 120-hour plan already applies to LCL charges (RA, June 6, p. 10).

NIT LEAGUE CONTENDS that (1) protestants' legal position is unsound; (2) there is no showing that protestants must or will adopt the new credit period; (3) the modified period strengthens the rails' ability to compete; (4) a Commission finding that there is no indication that all shippers would take full advantage of the credit extension is correct; and (5) a uniform credit period for carload and LCL shipments benefits shippers and carriers.

• **ANNUAL SAVINGS** of $38,700,000, before income taxes, and additional net income of approximately $18,000,000, after applicable income taxes at present rates, would be the result of the proposed Seaboard-Atlantic Coast Line consolidation. That's what the two roads told the ICC in their formal application for authority to merge. Full amount of the savings would be realized within five years, the two roads feel.

THE APPLICATION STATES that cash realizable from salvage, abandonments, non-recurring income tax savings and other items would total $67,500,000 over a five-year period—more than enough to pay for merger-connected cash expenditures, estimated at $66,200,000. These expenditures will include construction of a new electronic classification yard, which will cost $20,000,000 (RA, July 18, p. 7).

Why Brenco makes both roller and solid bearings

We enjoy our unique position of being the only manufacturer to make both roller and solid bearings. It gives us an unbiased, unfettered concentration on a big challenge: better bearings for the railroad industry.

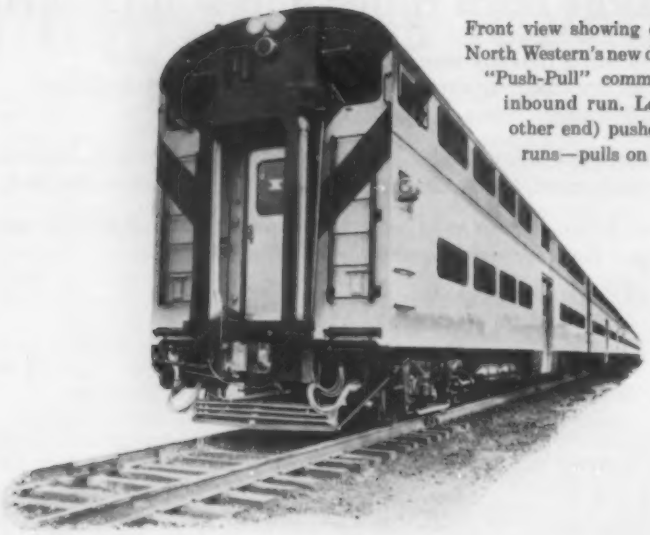
We believe that both types are needed today. Roller bearings for new, fast-freight, high-mileage cars. Solid bearings for older equipment, where they will continue to perform rugged duty.

We have acted according to our belief. Brenco solid bearings have seen years of reliable service. And now the Brenco *crown-taper* Roller Bearing is showing excellent results.

Brenco bearings... more than a million in service!

BRENCO INCORPORATED

316 East Main Street, Richmond, Virginia



Front view showing control cab of North Western's new double-decked, "Push-Pull" commuter train on inbound run. Locomotive (at other end) pushes on inbound runs—pulls on outbound.

No window-shade problems

No more shade cleaning, repairing, replacing on new Pullman commuter cars for C&NW ... the "shade" is in the glass!

A new window system installed by Pullman-Standard has successfully eliminated window shades—while assuring passenger comfort—in 152 new luxury coaches for Chicago and North Western Railway's "Push-Pull" commuter trains at Chicago. Thirty-six of the coaches are already in service.

The system uses two panes of glass: ¼" L·O·F Heat Absorbing Plate Glass as the outer pane, and ¼" Shaded E-Z-Eye Safety Plate Glass for an inner pane. Like E-Z-Eye automobile windshields, the plastic in the laminated glass is graduated in color from dark to clear.

Passengers enjoy a squint-free, picture-window view because the shaded band is scientifically designed to shield eyes from sun glare. The shaded band extends 16" from the top, providing extra protection against bright sky glare.

Passengers enjoy a cooler ride because E-Z-Eye filters out about half of the hot sunrays that pour through untinted glass. The Heat Absorbing Glass disperses even more sun heat.

This window system lowers air-conditioning operating costs . . . eliminates window-shade cleaning, repair and replacement! It is so successful, C&NW has the same—or similar—windows on more than 60 coaches, parlor cars and diners in through service including those in the bilevel "400" trains.

For technical information and engineering assistance, write to L·O·F, 7380 Libbey·Owens·Ford Building, Toledo 1, Ohio.

"Push-Pull" coaches feature bilevel seating. Accommodate 161 commuters to each coach. Engine crews control the train from special cabs in the lead car.

E-Z-EYE

L O F

SAFETY PLATE

LIBBEY·OWENS·FORD GLASS COMPANY

Toledo 1, Ohio

tunity to ship is a privilege. Shippers are allotted transportation and have to say when and how much business they will have, including the day and hour it will be ready. The railroad decides how long it should take to load a car once it is placed. The shipper is charged demurrage for any time longer than that he takes to get the car out.

We checked into the report of the remote-controlled train experiment the Russians have talked about. We were told the train is "temporarily under repair." Automation in Russia is the use of any kind of machine, a somewhat different view from the U.S. idea.

They didn't give us a very satisfactory answer to questions about loss and damage. The volume of that is unknown. Their officers did express interest in claims and the way we handle them.

Motive Power—They still use a lot of steam, but they're electrifying lines in a good many places and of course they are installing diesel-electrics in a big way. They introduced a new 3,000-hp diesel while we were over there.

They've apparently dropped the idea of an atomic locomotive. Now the idea is to use atomic power to generate electricity in substations and electrify. They're a long way down the path of modernizing their motive power already. Where steam is still used, it's being converted from coal to oil.

The catenary structure they use is very light weight; we didn't think it was adequate for heavy tonnage. But their average train seems to run 50 to 60 cars, and at low speed compared with ours. So the catenary is all right, apparently. Certainly it does reduce the capital required.

BACK FROM USSR: AAR Vice Presidents Curtis D. Buford (left) and William M. Keller arriving in New York last week following mission to Moscow.

Track and Roadbed—A great deal of Russian rail mileage is single-track line, but they have double-tracked where density requires it. That is their general approach; they expand facilities only after they get everything they can out of what they've got.

Their embankment is generally all right, but much of it is poorly maintained by U.S. standards. The roadbed ranges from good to poor to dirt. They have gone in for some mechanization in track work. Most of the equipment they have is for big jobs, and they have little to compare with the many varieties of smaller machines in use in the U.S.

Some of the ballast is good, but it's usually fouled when it goes in. They fill to within about 2 inches of the top of the tie, using crushed rock, then top this out with shells or granular asbestos because they say this catches drippings and preserves the ballast section.

Some welded rail is being installed. Their rail is rolled in sections of 40.410 ft and 80.820 ft, and some of the longer sections are being welded into 2,-624.7 ft lengths. Their welding practice parallels our own. The weight of the rail now in service ranges from around 70 lb per meter to 165 lb, but most of the new rail going in is what they call R-50 (111 lb).

Turnaround Time—We checked into this, because we had heard they run less than six days, compared with around 15 days over here. But the figures aren't comparable. They don't include the same things we do. But their time is good. It's helped by the more even terminal flow and by the fact that a lot of their traffic is relatively short haul. Apparently much of their production is consumed in the same area where it's produced.

Safety—This is a very important subject on USSR railroads—with a slight twist from U.S. practice. Their approach is keyed to the fundamental safety of train operation—what we consider rudimentary. It is their approach to individual safety that differs. They don't seem too concerned. They permit passengers to ride on top of trains, even in electrified territory with catenary, and through tunnels. We saw no safety goggles at all—even on workmen pouring babbitt and working at lathes. And you see employees crawl under cars; things are common which we don't allow on U.S. railroads at all.

Mail and Express—They have an express-type service, but express as we know it here doesn't exist. The people bring their business to the railroad. At destination the delivery is handled by city-owned trucks. These trucks operate as a kind of motor pool. The railroads do use wooden containers for package freight. The boxes range up to about 5-ton capacity.

Mail is totally different from ours. The amount they have is fantastically low. We visited one terminal in a city of 800,000 and there was less than two cars of mail a day being handled. Their mail does move in a distinctive package. They use sealed paper bags.

Signals & Communications—Each rail line is graphed to determine its capacity. Until that capacity is filled, no expansion is undertaken. There is still considerable use of wire-pull banjo signals and dispatching by use of train staffs. The dispatcher records train movements on a graph. The graph has the "norms" printed in light lines, and as a train progresses the dispatcher merely darkens in the line. These "norms" are set up to distribute train movements evenly throughout the day. If, for example, a line has 100-train capacity per day, but only 75 are operated, there are 25 vacant "norms." If extras are run they are plotted on vacant "norm" lines.

As traffic increases, a line is double-tracked with block signals, electrified, or CTC is installed. Electrification and signaling usually go hand-in-hand, but CTC is never installed on double-track. Continuous track circuits are used—75-cycle ac where 50-cycle traction is used; 50-cycle where dc propulsion is used, and dc track circuits elsewhere. Coded track circuits are also employed. Signals are colorlight or searchlight and cab signals, and inductive train stops are provided on some high density lines.

Aspects are similar to those in U.S., with one or two arms. Special blue and lunar white aspects are used at interlockings to permit switching moves. Standby battery is provided, with open-top cells still used frequently at interlockings. Relays, signals, retarders and other equipment seems patterned after U.S. design.

New interlockings are all-relay, and busy terminals have pushbutton automatic routing machines. Switch machines are electric. Automatic interlockings do not exist, and highway crossings are rare. Where they occur, normally-down pole barriers are used.

Even where CTC is in use, each station has a small machine with controls for local operations. One 50-mile line we saw had a central con-

trol machine and 10 local machines, one at each station.

Dispatchers use telephone with selector ringing. Some radio is used in electrified territory, transmitting about 5 miles through space and about 18 to 20 miles by inductive coupling to the catenary and line wires at 2-2.6 mc. Experiments with microwave are under way. The railroads have their own separate, independent communications system.

Commuter Service—Because Russia has so few automobiles, compared with the U.S., the railroads operate a large commuter service in towns like Moscow and Leningrad. It's a railroad economy all the way. They have subways, too, and these are very good, although they close down between 1 a.m. and 6 a.m., which is probably some inconvenience.

There are nine passenger stations in Moscow alone. One thing they don't have as much as we have is morning and afternoon peaking of loads. Since trains are the only way to go, there is a good mid-day flow, too, and their rush peaks are relatively much flatter than ours.

These commuter trains, like those in intercity service, are all-passenger. They separate freight and passenger service and apparently run few, if any, mixed trains.

Labor and Wages—Pay for railroad employees is generally low by our standards. Nor do they seem to have work rules in the manner we do. Employees perform duties as required, but there are manuals for different classes of employees. The work week is usually 42 hours, and if an employee completes his time early he's off duty. They pay no overtime, save in rare cases as in an isolated office, for example.

Most employees are paid by the month. Hourly-rated jobs are rare, too, and there is some piece-work. Operating employees get around $200 a month for six 7-hour days a week. This rate is somewhat above factory-work rates, generally, and that, plus fringe benefits, makes railroads a prestige industry in Russia. Railroad workers seem to have somewhat better housing and better recreational facilities.

The government also has set up excellent technical institutes to train young railroad employees. They told us that about one applicant in four gets in, so they're apparently getting good people. Their training programs are excellent.

Their labor organization is totally different from ours. Everybody belongs to the "union," right up to and including top policy makers. But the union's major function, of course, is to provide communication to all employees about prescribed state policies. Otherwise it administers various fringe benefit programs. Most railroad employees are career people.

Total employment runs around 3.5 million, largely because so much of what they do is by hand with very little mechanization. There are many women workers, including track gangs and in the shops. Overall productivity is bad, as you can realize when you figure the number of employees against total route mileage of less than half the U.S. mileage.

Interest in U.S.—Most Russian railroaders are greatly interested in U.S. practices, and read all they can get about them. Articles and books on U.S. developments are translated and widely circulated. Right now, they want to learn all about piggybacking, which they are considering but have not yet initiated, and mergers. All our current merger stories are being read carefully over there. As it turns out, they're interested because they may discover ways to produce savings by merging some of their regions. They have 35, and they recently merged three into one in the Moscow area. Each of the 35 regions has a separate name and is a separate operating entity.

When they merge regions the main thing they do is eliminate a layer of management. It further centralizes the administration, which seems consistent with their overall approach.

A lot of Russian industry has been decentralized in recent years but not railroads. They continue to be headed by the Minister of Railroad Transport who reports to the Department of Transportation and Communications.

Russian RRs have . . .

- Standardized freight cars
- Some welded rail
- Poor passenger equipment
- Captive shippers
- Balanced terminal traffic
- Good turnaround time
- Commuters
- Good maintenance

They don't have . . .

- Fully automatic yards
- Automatic trains
- An atomic locomotive in the works
- Adequate safety measures
- U.S.-type express service
- Overtime pay
- Working rules, U.S.-style
- Mechanized track maintenance

C&O Balks at Three-Way Merger

Chesapeake & Ohio President Walter Tuohy has agreed to meet with the presidents of the Baltimore & Ohio and the New York Central Aug. 15—but he has ruled out discussion of immediate three-way merger.

In a July 25 letter to B&O President Howard Simpson, Mr. Tuohy insisted that an immediate C&O-B&O alliance would be in the best interests of all concerned, including the NYC.

Such an alliance, he said, "in no way shuts the door" on the Central."This [C&O-B&O] plan can be in the New York Central's own best interests as a practical step leading to realistic consideration of three-way affiliation," Mr. Tuohy declared.

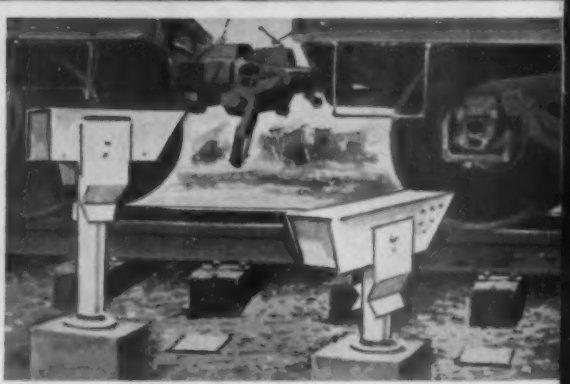
He said immediate merger of the three roads "would involve that which is unthinkable: a reduction in C&O's dividend rate and a precipitous lowering of C&O's financial position and the price of its securities."

Mr. Tuohy's letter was in response to a move by B&O directors to reopen three-way talks (RA, July 25, p. 10). The B&O board acted after the C&O and NYC made separate offers to B&O shareowners seeking to acquire control of the road.

NYC President A. E. Perlman, meanwhile, wrote Mr. Simpson on July 21 that "we concur wholeheartedly in your belief that a merger of the NYC, B&O and C&O would benefit each of the companies and the public. We should not delay in any way the realization of those advantages, and, consequently, I suggest that the meeting called by your letter of July 20 be held next week instead of on August 15."

Mr. Simpson was away from his office last week and not immediately available for comment.

HOT-BOX DETECTORS



SCANNERS are of horizontal or track-level type (the latter mount on either tie or concrete pad).

Spot overheating journals early ...save up to $300 per axle

One Eastern railroad figures that each potential hot box spotted *soon enough* saves the cost of a wheel change—up to $300 per axle. General Electric hot-box detectors can help you effect comparable savings by finding "beginning-to-heat" journals in time to repack and avoid wheel change. *Early* detection is one way the General Electric system can save you money. Here are others:

Reliable performance has been a strict design objective with General Electric hot-box detectors. Operating dependability stems from . . .

- Accurate detection at train speeds from 7 to 70 mph, at ambient temperatures from −40 to 125F.
- Designed to railroad requirements—rugged all-weather construction, high resistance to dirt, corrosion, vibration, or impact.
- Sensitive scanner does not confuse hot boxes with heating brakes, or other extraneous heat.
- Frequency Modulated (FM) Carrier Current transmits clear signal over long distance; not affected by static which can distort AM carrier systems.
- Axle counter and alarm quickly alerts your operator to hot box, tells him where it is located.
- Transistorized construction contributes to reliability, superior performance, small size.

One-day installation is normal for the General Electric system because . . .

- All system units come independently housed, requiring only mounting and interconnections.
- Scanners mount quickly.
- System connects to 110-V trackside power.
- Built-in test circuitry speeds check-out.
- Tools provided for easy alignment.

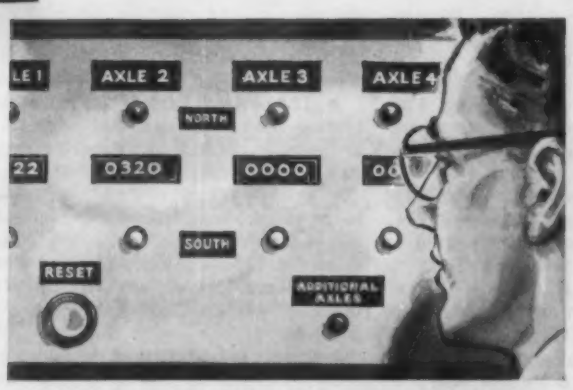
Minimum maintenance—normally restricted to cleaning scanner lens and checking alignment for trouble-free service. If necessary, component change is easy because of ready access to unitized sub-assemblies. System needs only a nominal spare parts inventory, which is backed by complete factory repair service.

Extra values—Only General Electric offers this complete hot-box detector "package"—a product with the accuracy and ruggedness to meet high railroad standards . . . backed by a nationwide sales and service organization including . . .

- Experienced G-E Application Engineers to help you plan your system.
- General Electric Service Engineers to get your system off to correct start, with complete initial system checkout.
- Factory training to teach your operating people to install, operate, and maintain the system.

We'd like to tell you more about the savings you can make and discuss other benefits the General Electric system can offer. Call your nearby G-E Sales Engineer, or write for Bulletin GEA-6950, to Section 793-03, General Electric Co., Schenectady, N. Y. Specialty Control Dept., Waynesboro, Va.

GENERAL ELECTRIC



AXLE COUNTER AND ALARM alerts operator to faulty journal, spots it for him with accurate axle count.

110-V POWER at trackside is all the General Electric system needs. The detector uses a low 200 watts power.

N&W Has No Hotboxes With Flat-Back Bearings

On collar end of bearing only a small part (light area) of the flashing was worn off. Because of lug location error, wear on fillet end averaged 7/64 in. Error was picked up after year of service.

After 23 months of service, R-2 bearing shows average condition of all bearings. Contact was straight and averaged 3⅜ in. wide on 57.8% of bearings. On remainder, the pattern was irregular.

With lug correctly located the bearing shows practically no wear on either the fillet or collar end of bearing. The journal contact pattern is straight and has an average width of three inches.

► **The Story at a Glance: The Norfolk & Western is one of about 20 railroads testing flat-back bearings in freight service. When presently planned installations are complete, 1,300 N&W hopper cars will be equipped with these plain bearings.**

So far, no N&W car to which the bearings are applied has developed a hotbox. The rugged construction of the flat-back bearing is expected to give it a long service life. Its relatively simple design makes it economical and easy to maintain.

No hotbox has been experienced with any flat-back bearing to date on the Norfolk & Western.

The road equipped 100 new 70-ton hopper cars with these plain bearings in February and March, 1958. It also has applied them to 1,000 new 70-ton hopper cars that have been rolling out of its Roanoke shops during the past few months. And 200 more 70-ton hoppers being built at the road's Princeton, W. Va., shops will get flat-back bearings.

Application of the bearings to 6,000 freight cars in interchange service has been authorized by the Association of American Railroads. About 20 railroads are starting test programs.

Why did the N&W investigate the flat-back design and where did it get its name? In 1957, while the road was experimenting with dust guards and lubricating devices, it appeared that solid-bearing performance was limited by the bearing design itself. To attain the desired solid-bearing performance, the alternatives appeared to be either installation of journal stops or a modification of the standard AAR "steeple-back" solid bearing. The N&W's mechanical department officers decided to investigate the possibilities of a design change.

The N&W officers, at American Brake Shoe Company's Mahwah, N. J., laboratory, indicated interest in a flat-back bearing developed from a 1926 interurban car bearing design. The design had been modified and used successfully since 1937 in baggage and express cars. In that service the bearing demonstrated advantages not possessed by the "steeple-back" bearing.

The N&W ordered 12 of the bearings for test. They were installed on an auxiliary water tender to get accelerated mileage and accurate reporting. Results were so promising after 100,000 miles of service that the road equipped the hundred hopper cars for a more comprehensive test.

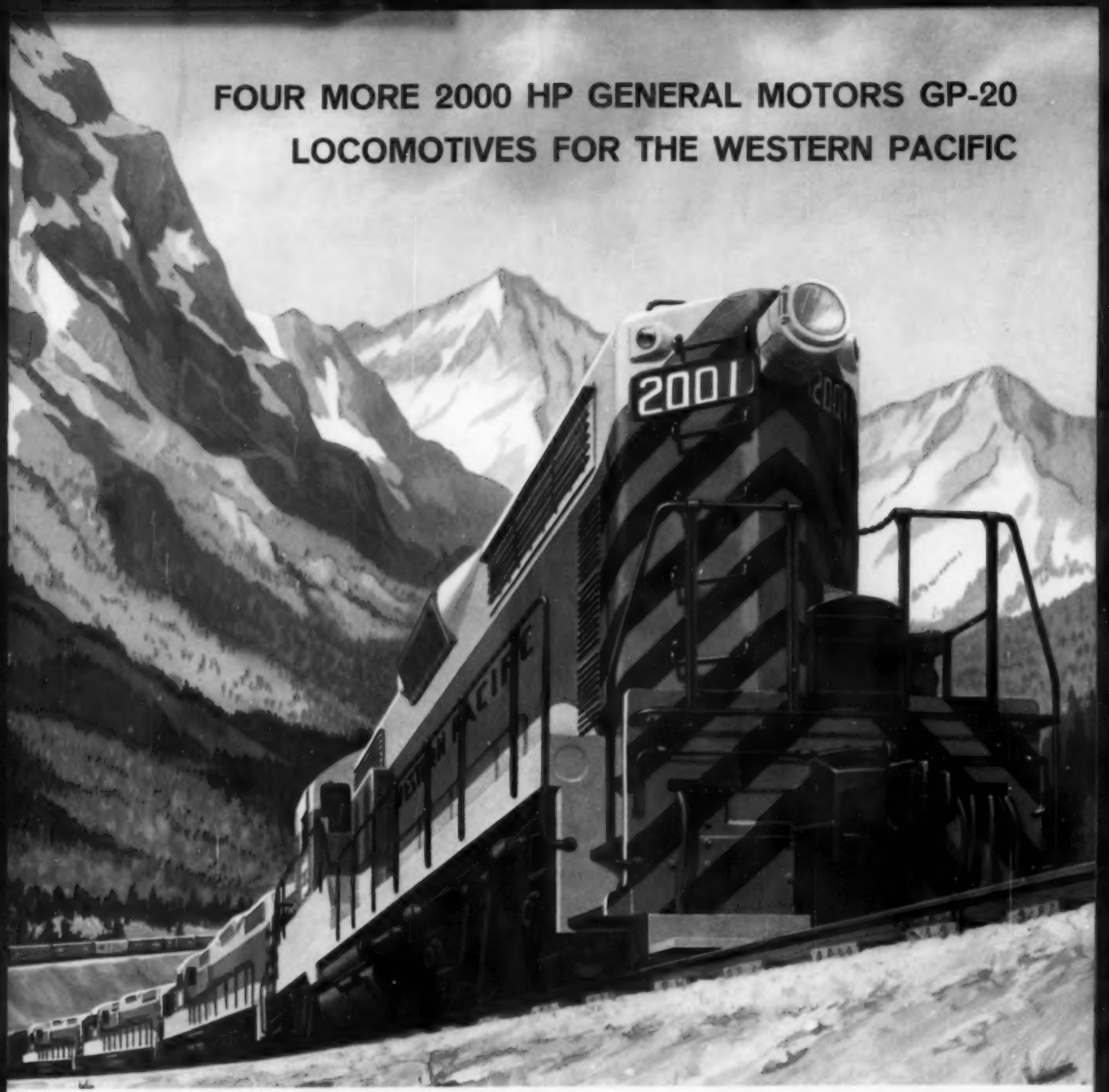
The major shortcoming of the "steeple-back" bearing is its horizontal displacement under excessive car coupling impacts, by accelerating and decelerating forces, and by braking pressure from a single shoe rigging. It also covers a smaller portion of the journal than the flat-back and permits waste and some types of lubrication to climb high on the rising side of the journal.

Design modifications of what American Brake Shoe calls the positive control flat-back bearing are an answer to "steeple-back" limitations:

- The mating surfaces of the wedge and bearing are made flat over their entire width to minimize vertical separation of the bearing and the wedge and resultant tilt of the bearing. It is this design difference that is responsible for the difference in names. As an example, the 6 in. by 11 in. "flat-back" is flat across the entire 7⅛ in. width of the back. The same-size standard AAR "H" bearing has pyramidal sides and is flat across only 3⅝ in. of the back.
- The width of the flat-back bearing is increased one-quarter inch over the width of the standard "steeple-back" bearing, which reduces side clearance of the bearing between the stop column faces of the journal box. This greatly reduces the effect of the accelerating and decelerating impact forces, and further stabilizes the relative position of the axle journal in reference to the contained parts of the journal assembly.
- The vertical sides of the flat-back bearing have been extended from ¼ to ⅝ in., according to journal bearing size. In each case it is the maximum side extension that can be assembled in the journal box through the standard lid openings. This modification provides the flat-back bearing with more impact-absorbing surface to contact the stop column faces in the journal box. More than twice the area of that surface is contacted in the "steeple-back" design. In addition, the increased height of extension of the bearing sides increases the collar and

(*Continued on page 23*)

FOUR MORE 2000 HP GENERAL MOTORS GP-20 LOCOMOTIVES FOR THE WESTERN PACIFIC



WP adds more power with Electro-Motive Locomotive Replacement Plan

In November 1959, the Western Pacific took delivery of six new General Motors GP-20 locomotives. The success of these powerful Diesels (permitting faster scheduling, heavier hauls, unit elimination) prompted the Western Pacific to embark on a program to replace older freight type locomotives with GP-20's.

The WP is acquiring the new power under Electro-Motive's Locomotive Replacement Plan. Four FT freight locomotives originally delivered during World War II have already been turned in to Electro-Motive on the purchase of four GP-20 locomotives.

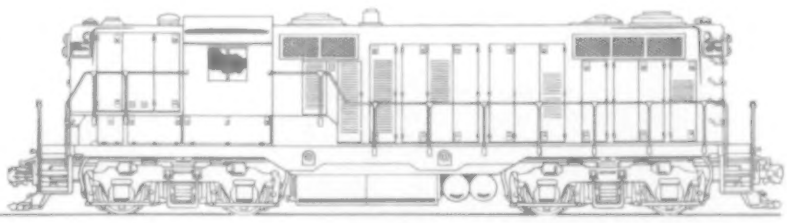
Why is the WP buying new power this way? Cost is one reason. The new units are purchased at much lower capital investment because of the turn-in value of the old locomotive. Another reason is the higher horsepower of the new unit. *Three* GP-20's will do the work of *four* of the old locomotives. Greater versatility, lower fuel consumption and reduced maintenance are other reasons.

Can these savings and advantages be applied to your road? Ask your Electro-Motive representative.

For more details on the GP-20, turn page . . .

2000 HP GP-20 locomotive, one of six such units delivered to the Western Pacific in November, 1959. Four additional units delivered in July 1960, under Electro-Motive's Locomotive Replacement plan, are identical in appearance and all operating characteristics.

The GP-20 is nearly identical in size with past GP models. It measures 15′ high, 56′ long, coupler to coupler. Width is 10′.



Power is up, maintenance and fuel costs are down . . .

The GP-20:
a locomotive to revise all measurements of general purpose performance

The new GP-20 is a 2000 hp general purpose locomotive unit with four-wheel trucks. In appearance, it resembles past GP's but there the similarity ends. The increased capacity of its new prime mover, transmission and related systems has set new standards of performance.

For example:

Faster runs, more tonnage, greater versatility. The 2000 hp GP-20 has all the flexibility of predecessor GP's but with more capacity for heavy tonnage, high-speed freight service. In multi-unit consists, it will speed up present schedules, or handle more tonnage at established speeds. For many trains, the GP-20 will mean cost-saving unit elimination.

Lower fuel consumption. The new 567D-2 engine actually produces more power on a smaller diet than the famous "C" engine. The Electro-Motive designed Turbo-charger and new needle valve injector combine to reduce specific fuel consumption by as much as ten percent. The Turbo-charger is also responsible for maintaining rated engine power in higher altitude operation (up to 8000-foot altitude). With the GP-20, full-working power is maintained throughout a wide range of operating altitudes.

60% reduction in scheduled maintenance. More than thirty new maintenance reduction items are basic on the GP-20. Scheduled maintenance requirements have been lowered by 60 percent. In addition, the GP-20 contains material and design improvements in major components that measurably improve their durability and operating life.

Among the many improvements in the GP-20 is a new main generator with a 50 percent greater service life than previous generators, a new electro-magnetic control cabinet that completely eliminates scheduled maintenance, and a new high speed wheel slip control that protects traction motor components against damage from motor overspeed.

For specific details on the GP-20, contact your Electro-Motive representative.

ELECTRO-MOTIVE DIVISION
GENERAL MOTORS · LA GRANGE, ILLINOIS
Home of the Diesel Locomotive
In Canada: General Motors Diesel Limited, London, Ontario

GENERAL MOTORS LOCOMOTIVES

More power at less cost with General Motors great new line of locomotives—

1800 hp General Purpose GP-18 | 1800 hp Special Duty SD-18 | 2000 hp General Purpose GP-20 | 2400 hp Special Duty SD-24 | 1325 hp Road Switcher RS-1325

22 continuous advertisers in Railway Age since 1910!

Fifty years ago Railway Age was already 54 years experienced in bringing vital news to railroad management. And then, as now, Railway Age was a potent advertising medium.

The names above represent 24 firms who have advertised *continuously* in Railway Age for 50 years and longer.

Today, Railway Age is a more efficient advertising medium than ever.

Published weekly, it brings up-to-the-minute developments to railroad management. Its coverage is complete and authoritative. In the complex of today's business, informed management has grown to seek more from it—spend more time with it.

Railway Age is read by decision makers—96% of the presidents, 97% of the chief operating officers, 87% of the chief purchasing officers of all Class I railroads.

When it comes to advertising results, you don't have to be a pre-1910 vintage advertiser to benefit from Railway Age. For detailed information on the Railway Age audience and the opportunities it offers advertisers, the man to see is your Railway Age representative. Simmons-Boardman, 30 Church Street, New York 7, New York.

N&W: NO HOTBOXES WITH FLAT-BACK BEARINGS (*Continued from page 18*)

fillet thrust surface areas by as much as 2½ to 5%.

Thus, the flat-back bearing not only stabilizes and restricts axle journal movement in reference to the other related parts of the journal box assembly, but provides it with improved resistance to impact and wear at both collar and fillet ends. Its extra weight, 47 lb vs. 36 lb in the 6 in. by 11 in. size, also makes it more rugged and should increase its service life.

With the advent of journal bearing lubricating pads that leave space in the bottom of the journal box for free oil, the oil loss through the dust guard opening of the journal box became a more serious problem. While considerable effort has been made to improve the sealing of the dust guard opening, the problem of damaging such a dust guard or seal by axle movement in the dust guard well in an assembly with the "steeple-back" bearing has become acute.

Improved Stability

It has been necessary to resort to journal stops and similar functioning accessories to restrict axle movement. The flat-back bearing centers and restricts the axle movement in the box, so the sides of the dust guard are not subjected to the crushing forces of a displaced axle.

The stability of the flat-back bearing on the journal prevents spread linings, and reduces the hazard of having strands of lubricating materials entrapped between journal and bearing with pad lubrication, or waste grabs with waste lubrication.

A preliminary inspection report by the N&W in August 1959, after 19 months service with the first 100 hopper cars, concluded:

"It is evident that journal stops or flat back bearings will restrict the movement of the journal within the journal box, such as occurs during braking or slack run-in and run-out. This results in a longer bearing life as well as a longer service life of the journal box rear seals and consequently elimination of water and dirt entry and oil loss. This is certainly a definite approach to hotbox elimination.

"In choosing between the journal stop and the flat back bearing, the flat back bearing appears to be the most economical. It is a simpler approach eliminating added components in the box, either bolted, welded, or attached to some type of support. Maintenance would be reduced by removing the need to tighten up bolts and shimming to take up accumulated wear on the stops."

Early in 1960, inspections were made of all (256) of the boxes of 32 of the 100 cars. The condition of the bearings, wedges, seals and lubricating pads was good in all the boxes.

On 57.8% of the bearings the wear pattern of the bearing on the journal was straight and had an average width of 3⅜ in. On the remainder, the pattern was irregular. Wear on the collar end of the bearing was as follows: Nil on 175 bearings; 1/64 in. on 61 bearings; and 1/32 in. on 20.

On the collar end of the R-2 bearing only a small part of the flashing of the babbitt lining had worn off. Because of an error in lug location, wear on the fillet end of the bearing averaged 7/64 in. plus, the range of wear running from nil to 3/16 in. This error was not picked up until the bearings had been in service about a year.

In July 1959, two cars were equipped with positive control flat-back bearings with lugs correctly located. One of these cars was inspected last February, after an estimated 9,500 miles.

A photograph of the R-1 bearing removed from the car showed practically no wear on the fillet end or the collar end of the bearing. On the collar-end part of the babbitt, flashing was still intact. The journal contact pattern was straight and averaged 3 in. in width. The face of the bearing lugs had been making good contact with stop columns in the box.

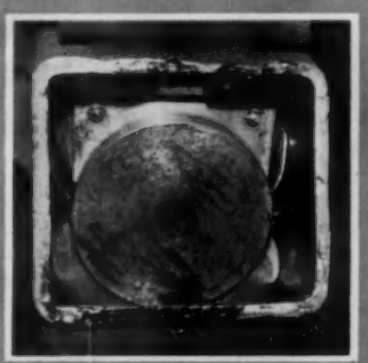
Over-all car inspection showed that dust guard seals after nineteen months' service, were, as a whole, in good condition. Twelve of the 256, or 4.7%, showed the inner bead of foam rubber torn around the dust guard seat, or the inner foam separating from the plywood core. However, even these dust guard seals were still effective. Seals on the journal-box lids were all in good condition.

Excellent Wear Conditions

Inspection of the 33 cars shows that the flat-back bearings with dust guard seals and box lid seals afford excellent wear conditions and cleanliness never before experienced with conventional journal box assemblies in N&W service. The road reasonably expects that these assemblies will operate for at least four to six years before any parts will have to be renewed. It also expects that during this period the interior of the box and its parts, including the oil, will remain clean.

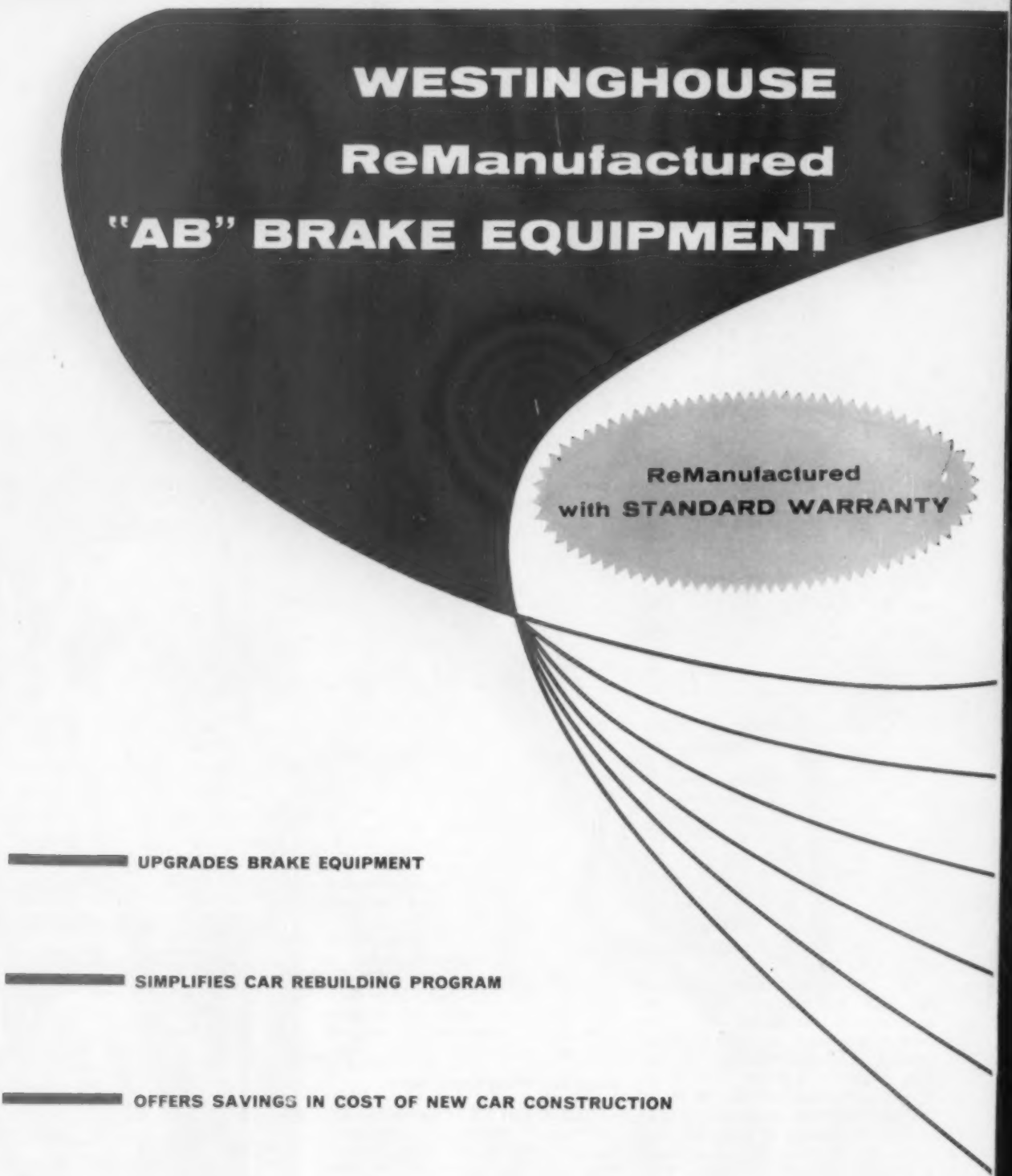
Like the first 100 cars, the 1,000 new N&W cars are equipped with dust guard and journal-box lid seals and lubricators. The ends of the flat-back bearing wedges are being machined to provide full contact of the ends to prevent skewing of the bearing on the journal from lateral forces, which, in turn, cause irregular bearing patterns of the bearing on the journal.

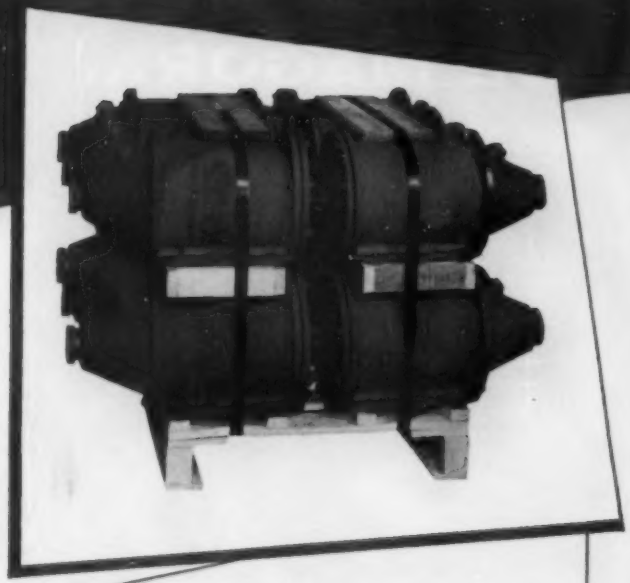
Of the two groups of cars built at Roanoke and Princeton, the AAR has authorized 800 to be stenciled for a four-year repack inspection. These cars will be equipped also with Absco dust guards, lid seals, and four different types of lubricating pads.

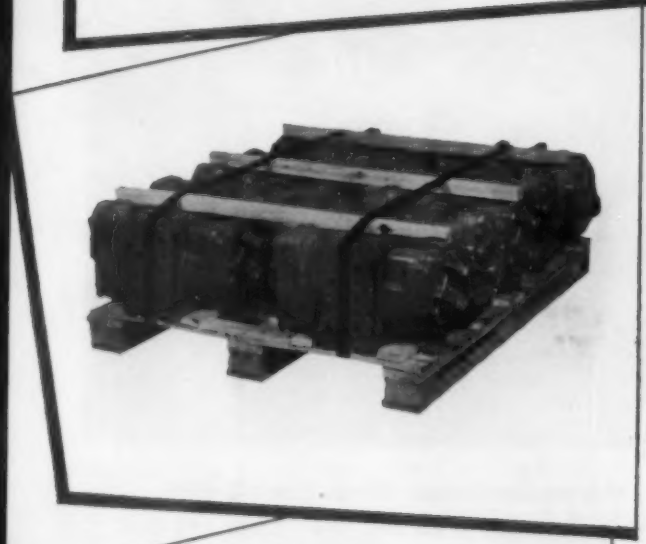


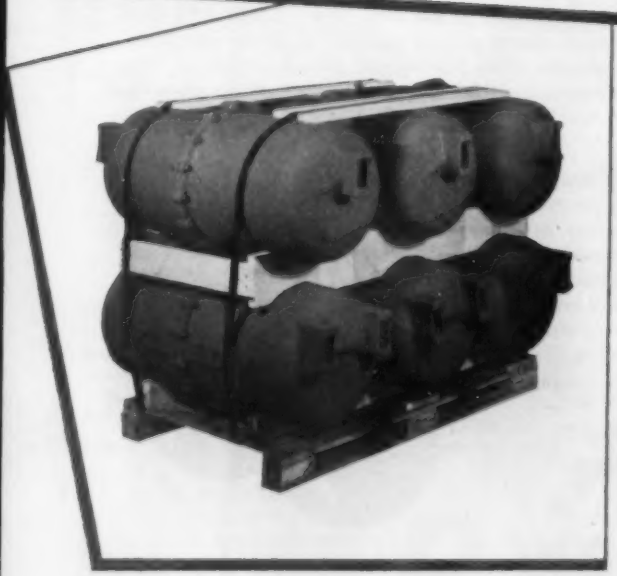
The cleanliness of box interior and component parts is shown before the lubricator was removed. It was far beyond what was expected after approximately two years of service.

Cleanliness of box interior is shown after the lubricator was removed. Cleanliness is due to protection flat-back bearing gave to dust-guard seal and to journal box lid seal.


WESTINGHOUSE
ReManufactured
"AB" BRAKE EQUIPMENT
ReManufactured
with STANDARD WARRANTY
UPGRADES BRAKE EQUIPMENT
SIMPLIFIES CAR REBUILDING PROGRAM
OFFERS SAVINGS IN COST OF NEW CAR CONSTRUCTION
REDUCES COST FOR ANY SIZE OR TYPE OF AIR BRAKE SHOP
INSURES RELIABLE OPERATION THROUGH EXTENDED FOUR-YEAR CLEANING PERIOD







Merely ship us your out-of-date "AB" Valves, Reservoirs and Brake Cylinders. We modernize them in every respect, supply all-new, full set accessories and return to you, skid mounted for easy handling — all under the same quality standards observed in original manufacture—and with the same standard warranty.

REMANUFACTURE eliminates a multitude of hidden costs involved in alternate contraction and expansion of shop forces with the cyclical swing in freight traffic.

Our representatives welcome the opportunity to review the favorable costs basis of a ReManufacture program for your freight cars.

"QRR" BRAKE CYLINDER RELEASE VALVE

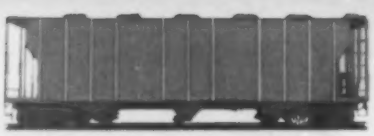
available with

REMANUFACTURED "AB" EQUIPMENT

This device reduces train make-up time in yard 50-75%, dependent on train length. It can be installed on ReManufactured "AB" Valves at an advantageous cost.

Westinghouse Air Brake
COMPANY

AIR BRAKE DIVISION WILMERDING, PENNA.



Aluminum Covered Hopper Car
3818 cubic foot 100 ton capacity
Weight 50,100 pounds

Low Alloy—High Tensile Steel Covered Hopper Car
3930 cubic foot 94 ton capacity
Weight 63,700 pounds

PAYLOAD IS THE PAYOFF!

Weight eliminated in the new larger, lightweight cars by Magor means greater payload in every operation. And because these lightweight cars are built to take punishment, their heavyweight performance means reduced operating costs as well. Payload is up—overhead is down with these revolutionary new cars.

Inside Magor a top notch development team can turn its 58 years of experience, designing special and custom built cars, to the design of new lightweight cars for your needs. Find out for yourself what fresh engineering concepts of car design and construction can do to make your operation more profitable.

MAGOR

MAGOR
CAR CORPORATION
50 Church Street · New York 7, N.Y.

GOP Backs 'Integrated Transport'

Delegates to the Republican national convention last week called for a transportation improvement program based on free enterprise operating under "equitable, impartial and minimal regulation."

Unlike the Democrats, who approved their 1960 platform two weeks earlier, GOP platform architects didn't single out any mode of transport as particularly in need of aid. And they omitted specific reference to plans for assistance to urban mass transportation.

The principal Republican transport policy statement, Part 7 of the plank on economic growth, said the party favors "continued improvement of our vital transportation network, carrying forward rapidly the vast Eisenhower-Nixon national highway program and promoting safe, efficient, competitive and integrated transport by air, road, rail and water under equitable, impartial and minimal regulation directed to those ends."

Actually, five of the eight points in the plank can be construed to have a bearing on the railroad situation. The GOP is also favoring:

- "Broadly-based tax reform to foster job-making and growth-making investment for modernization and expansion, including realistic incentive depreciation schedules.
- "Elimination of featherbedding practices by labor and business.
- "Relating wage and other payments in production to productivity—except when necessary to correct inequities—in order to help stay competitive at home and abroad.
- "Spurring the economy by . . . keeping the federal government from unjustly competing with private enterprise . . ."

Where the Democrats advocated aid to communities in transporting commuters (RA, July 18, p. 10), the GOP noted merely that "we believe that the federal government, when appropriate, should render significant assistance in dealing with our urgent problems of urban growth and change. No vast new bureaucracy is needed to achieve this objective."

Among the other 1960 platform points: "The Post Office must be continually improved and placed on a self-sustaining basis."

Railroading After Hours with Jim Lyne

MANAGEMENT GAME—I paid a visit recently to the CNR staff school at Lennoxville, P.Q.—and the day I was there the program was the "IBM Management Game." I'd heard of this operation, but this was the first time I'd ever seen it at a close range.

A half-dozen management "teams" are formed for a mythical business, each team making joint decisions on such questions as price, volume of production, money to be spent on merchandising, and on whether or not to invade areas served by nearby suppliers. The decisions are fed into a computer and the results on net income of each combination of management decisions are calculated. Of course, some of the teams make out better than the others—which is where the game lies.

Ordinarily, few employees or supervisors go beyond the measure of their own department's efficiency. They seldom have occasion to consider that departmental efficiency is not an end in itself, but has value only as it contributes to net earnings. These management games are geared to draw needed attention to that end result.

AIRLINE SERVICE—I gather from the papers that there's a lot of public dissatisfaction with airline service—such things as overselling the available space, and not completing their schedules.

One fellow tells about a flight from Dallas to Boston: "We were an hour late into Chicago, but the weather closed in and all flights were cancelled—so we finished the trip by train and the damn train was 20 minutes late!"

I get slight comfort from these reports. Despite all their imperfections, the fact remains that, when you ring up an airline for information, you usually get a prompt reply, and the employee who answers, most of the time, is courteous and helpful. The airlines are in the fortunate position of doing business only where they find a handsome profit in it—and, if the profit from customers isn't enough to be attractive, Uncle Sam antes up as necessary. Any business *ought* to do a good job for its patrons when it's as lucrative as air transport is.

VANDALISM—Railroads, with so much unguarded property, have always been the victims of vandalism—stones through windows and worse; as well as mischief that is expensive rather than dangerous. The rise in such shenanigans is not, however, confined to North America. The Railway Gazette (London) reports that in a recent month on the British Railways, on the Southern Region alone, there were over 5,000 separate cases of deliberate damage to railroad property.

Writing from Rio de Janeiro, my friend Loyd Kiernan tells me the Central do Brasil reports a daily average of 200 cars under repair, for wanton or malicious damage. The replacing of broken windows alone is costing the road $50,000 a year.

'RANCH HOUSE STANDARDS'—I have my own nominee for citation as the most articulate railroad officer, but he wouldn't relish having the label applied to him publicly, I'm sure. But how about the following observation by him as to present high living standards—which most people now consider to be their inalienable right?—

"Our restless rise in living standards features ranch houses, station wagons, backyard barbecues, and swimming pools. Our predecessors thought they were doing pretty well with half of a double house and a croquet set in the back yard, within easy walking distance of a trolley line."

Santa Fe

► **The Story at a Glance: The Santa Fe has modernized its central drafting room in Los Angeles. Result: more working space, greater production, higher morale.**

First step was to eliminate outmoded map-storage cabinets and old-style drafting tables with their high stools. New metal map cases were installed, as well as metal desks with drafting boards adjustable for use by persons standing or sitting.

Other new equipment permits microfilming maps and records for conserving storage space and enables reproduction work to be speeded up. High-intensity lighting, and air-conditioning, completed the project.

Railroad engineering departments have been instrumental in reorganizing and equipping track, bridge, building, signal and communication forces. Now, modernization has reached the engineering department itself.

This is exemplified by a recently completed project on the Santa Fe. The project involved replacing the old facilities of the road's central drafting room in Los Angeles with new equipment. Incorporation of the latest features in lighting, drafting equipment and air-conditioning is said to have made it one of the most modern layouts of its kind among railroads.

No major structural changes were made. The working area was greatly increased, however, by replacing bulky storage cabinets and furniture with modern space-saving equipment. Microfilming of many of the maps and records further reduced the space required for storage.

Light Intensity Increased

A Holophane Prismalume Controlens luminous ceiling increased the light intensity from 40 to 160 candlepower eliminating both glare and shadows.

The newly installed auto-shift drawing boards are completely adjustable by means of a foot pedal (for height) and a hand lever (for angle and slope). This makes it possible for the draftsmen to work comfortably whether standing or sitting. Each board is supplemented

◀ **AFTER REMOVAL** of old map cases, space was provided for an additional row of new drafting desks with boards. Draftsmen now sit on posture chairs in an air-conditioned room and work with shadow-proof lighting.

Modernizes a Drafting Layout

BEFORE MODERNIZATION WORK, draftsmen in Santa Fe's central drafting room at Los Angeles, were seated on high stools at cumbersome tables. Maps and drawings were rolled up for filing in cubbyholes of cabinets.

by an easily accessible drawer and reference-space cabinet, directly behind the draftsman, which provides a convenient place for bulky reference material. Adjustable posture chairs were designed especially to accompany the auto-shift tables.

The problem of storing and preserving some 29,000 sets of maps, consisting of 1 to 50 sheets each, was solved by introducing compact metal map cases. The cases are fitted with dust-free, roller-bearing drawers. The drawers are equipped with tracing lifters, a mechanism contained within the drawer to permit easy removal or filing of maps. A rear hood adjusts its height to the contents, maintaining compression at the rear of the drawer and thereby preventing wear and tear of the maps through curling or riding up.

Original location maps, filing maps and other maps not filed with the current record maps, but which must be retained for frequent reference, were filmed on 105-mm Micro-Master film, a 4-in. by 6-in. negative which purportedly gives superb reproduction of drawings up to 36 in. by 54 in. The negative can be used to produce a second original (full-size, half-size or any intermediate scale), free from distortion and grain, on many forms of transparent materials. It is also said the negative provides clearer reproductions than the aged and torn originals, is easier to handle and requires far less filing space.

Multi-Purpose Viewing Table

A viewing table with a 41-in. by 59-in. top permits viewing of full-size images of the original drawings. It can be used for such things as scaling dimensions, tracing all or portions of drawings, and for reference. Although the negatives are large enough for identification with the naked eye, portable viewers have been provided for spot magnification. The viewers are readily moved from desk to desk, or office to office.

The Micro-Master reproduction method is also being used to replace worn-out linen tracings with new tracings reproduced on linen. This technique has produced substantial savings in time, labor and material.

Record maps seldom referred to, but which must be retained, were filmed on 35-mm film. These also may be reproduced on transparencies, or by the ordinary photographic-reproduction process.

The 35-mm microfilm negatives are mounted on aperture cards. Hence, both types of film may be filed in the same size drawers and viewed with the same viewer.

It is estimated that microfilming the maps reduced the filing space to one one-hundredth of that formerly required, thereby creating a larger area for uncrowded arrangement of the new equipment.

This modern facility, with its improved lighting system, up-to-date drafting equipment and efficient and compact setup for filing and preserving both current and older maps and records, has, says the road, resulted in increased productivity and improved morale among drafting-room personnel.

the PB-64

TR-900

...a rugged TRAILMOBILE for high profit piggybacking

Here's a trailer that stands up beautifully to the rigors of piggyback service. Its all-steel construction offers solid overall strength in a unit that is surprisingly light in weight—lighter, in fact, than some aluminum units. Its exclusive "integral post" construction is ideally suited to withstand the impacts of normal rail coupling and the hard knocks of city shuttling. And it rides on the famous Trailmobile tandem that has earned a reputation for long term, dependable performance.

And there's room for big payloads too! Inside width is over 93". Inside height is a big 96" over the full length of the trailer. And cargoes ride securely on a heavy tongue and groove oak floor that easily supports lift truck loading.

The PB-64 is just one of many design possibilities offered by Trailmobile's CID* concept, which lets you match trailers to your operating conditions. Your nearby Trailmobile representative will provide full details.

Customer Individualized Design

TRAILMOBILE INC.

Cincinnati 9, Ohio • Springfield, Missouri
Longview, Texas • Berkeley 10, California

MARKET OUTLOOK *at a glance*

Carloadings Rise 2.1% Above Previous Week's

Loadings of revenue freight in the week ended July 23 totaled 619,784 cars, the Association of American Railroads announced on July 28. This was an increase of 12,703 cars, or 2.1%, compared with the previous week; an increase of 83,389 cars, or 15.5%, compared with the corresponding week last year; and an increase of 11,719 cars, or 1.9%, compared with the equivalent 1958 week.

Loadings of revenue freight for the week ended July 16 totalled 607,081 cars; the summary, compiled by the Car Service Division, AAR, follows:

REVENUE FREIGHT CARLOADINGS
For the week ended Saturday, July 16

District	1960	1959	1958
Eastern	84,210	87,584	82,238
Allegheny	96,658	94,863	90,661
Pocahontas	50,033	47,102	47,367
Southern	105,713	105,579	104,584
Northwestern	101,323	88,932	94,849
Central Western	116,908	110,640	113,792
Southwestern	52,236	50,373	48,753
Total Western Districts	270,467	249,945	257,394
Total All Roads	607,081	585,073	582,244
Commodities:			
Grain and grain products	73,322	59,977	62,474
Livestock	3,425	3,880	3,985
Coal	95,103	94,301	101,171
Coke	6,194	5,959	5,218
Forest Products	37,817	39,918	34,999
Ore	68,107	44,457	50,107
Merchandise l.c.l.	33,645	38,022	42,331
Miscellaneous	289,468	298,559	281,959
July 16	607,081	585,073	582,24[illegible]
July 9	456,330	552,313	491,566
July 2	549,416	574,102	460,345
June 25	641,628	697,797	627,185
June 18	649,830	724,278	628,010
Cumulative total, 28 weeks	16,753,162	17,405,774	15,365,987

PIGGYBACK CARLOADINGS.—U. S. piggyback loadings for the week ended July 16 totaled 9,563 cars, compared with 7,531 for the corresponding 1959 week. Loadings for 1960 up to July 16 totaled 294,524 cars, compared with 218,592 for the corresponding period of 1959.

IN CANADA.—Carloadings for the seven-day period ended July 7 totalled 67,706 cars, compared with 104,120 for the previous nine-day period, according to the Dominion Bureau of Statistics.

	Revenue Cars Loaded	Total Cars Rec'd from Connections
Totals for Canada		
July 7, 1960	67,706	25,815
July 7, 1959	71,834	24,904
Cumulative Totals		
July 7, 1960	1,863,806	764,154
July 7, 1959	1,895,576	744,578

New Equipment

FREIGHT-TRAIN CARS

► *Canadian National.*—Ordered 80 40-ft narrow-gage flat cars from Eastern Car Division of Dominion Steel Corp., Trenton, N. S., for use on its Newfoundland lines. The cars, although similar in weight to units now in service in the province, will have 35% increased capacity due to the use of low-alloy steel instead of carbon structural steel, according to CNR.

► *Louisville & Nashville.*—Will rebuild 3,000 50-ton hopper cars at a cost of approximately$10,000,000. L&N will spend an additional $5,000,000 to modernize and enlarge its Louisville car repair shops for assembly line production. Rebuilding will get under way by Aug. 15, using a temporary assembly line already set up for production. Prefabricated sides, ends and floors will be used. Construction of the new, permanent shop facilities is expected to be completed in about 18 months. Extensions to existing shop buildings will virtually double the working space. A new car dismantling plant will also be constructed.

► *Milwaukee.*—Is acquiring 25 insulated, mechanically-refrigerated Flexi-Van trailers through lease arrangement with Strick Trailer. New order increases Milwaukee's Flexi-Van equipment to a total of 64 flats, 215 vans, and 115 bogies.

New Facilities

► *Canadian Pacific-Canadian National.*—Awarded a contract to Budelman Electronics Corp. of Stamford, Conn., for microwave radio equipment to extend their Quebec-New Brunswick microwave radio relay system to Moncton. Extension, slated for completion early in 1961, will run from Dalhousie to Moncton, approximately 178 miles.

Orders and Deliveries

► *Orders Decrease.*—Orders were placed in June 1960 for 321 new freight cars, compared with 2,234 in May. June 1959 orders totaled 8,054. Deliveries in June totaled 6,042, compared with 5,931 in May and 3,950 in June 1959. The backlog of cars on order and undelivered as of July 1, 1960 was 29,555, compared with 36,106 on June 1 and 40,973 on July 1, 1959.

TYPE	ORDERED June, 1960	DELIVERED June, 1960	ON ORDER & UNDELIVERED July 1, 1960
Box—Plain	25	1,482	8,934
Box—Auto	0	0	500
Flat	70	260	2,063
Gondola	0	281	4,480
Hopper	47	2,821	7,526
Cov. Hopper	62	560	927
Refrigerator	0	369	3,794
Tank	110	254	999
Caboose	5	15	160
Other	2	0	172
TOTAL	321	6,042	29,555
Car Builders	244	3,697	14,134
Railroad Shops	77	2,345	15,421

Time vs. Tonnage Debate

To the Question and Answer Editor:

To answer Mr. Donovan's question about "Time or Tonnage" (RA, May 30, p. 44) requires an analysis of each individual operation of each railroad, making it impractical to use a "rule-of-thumb" conclusion.

It would be normal, for Mr. Donovan [as a freight sales manager] to be primarily interested in customer satisfaction whether the customer is the shipper or the consignee. It is agreed that efficient service is the ultimate goal. I do not agree that tonnage is expendable in an effort to improve time in all cases other than coal and ore. The gross ton-mile per train-hour and the resultant operating cost decide if expeditious handling based on time only results in good net revenue. We are not subsidized and must produce a net revenue to operate, improve, develop, expand and finally compete with other modes of transportation.

The total elapsed time, shipper to consignee, for a 60-car train (length of train referred to by Mr. Donovan) or a 120-car train does not differ much, if at all. The exceptions are hot-shot symbol high priority trains handling perishable and other special loads on passenger train schedules. But, general train consist is different due to the following and other reasons:

(a) The time consumed from shipper to the train departure tracks of the classification yard and the receiving track of destination yard to the consignee usually absorbs the greatest amount of time. Great strides have been made in yard operations, but until we produce still undeveloped improvements—in yard design, yard classification, yard handling and the necessary equipment to handle—we can not make proper use of high-speed over-the-road trains.

(b) Short trains, assuming the head end power is corresponding, can lose time on grades where they become drags, whereas these same grades would be momentum grades with long trains.

(c) Short trains, again assuming corresponding head end power, with only one or two units of power could be seriously delayed with diesel malfunctioning. But long trains with three or four units or more could take the troublesome unit off the line and limp home with full tonnage or make a small set-off and continue.

The usual answer given to (b) and (c) is more headend power; however, the corresponding bite in additional operating costs will reflect seriously in net revenue. Present day motive power is capable of moving a large volume at the lowest cost per gross ton-mile. This is one of the biggest assets for [railroads staying competitive]; it is just a matter of using it to its fullest benefit by combining tonnage and speed with a practical analysis.

If a railroad, as a matter of example, has 120 cars in yard "A" to be moved to yard "B" and requires four units to move the 120 cars as one train, or two trains of 60 cars each with two (or three) units each, I believe a cost study, in many instances, would prove it more economical to move in one train with four units and one crew, rather than two trains, two (or three) units each and two crews.

In addition, elapsed time for the 120 cars from yard "A" to yard "B" could be considerably greater with two trains of 60 cars each than with one train of 120 cars. While it is possible that the first train with 60 cars would arrive at yard "B" in less running time than a 120-car train, and thereby satisfy the shippers and consignees of the first 60 cars, the second train of 60 cars would arrive later, to the possible dissatisfaction of these shippers and consignees. There are exceptions to this thinking and it is agreed that cars should not be held back for long periods for the purpose of long trains, especially if they are on per diem.

The above indicates the complexities and the necessity of cost studies that every individual railroad should make to improve the handling of its train lengths. There is no rule-of-thumb method applicable to every case, and to state arbitrarily that 60-car trains are a distinct advantage over 120-car trains, or vice versa, would be impractical.

The proper approach to this subject is an educational program on the part of each railroad. Officers in charge of yards should be given an educational program to provide them with the basic information that will assist them in determining the most economical train lengths in any 24-hour period. After 14 years of supervising the testing of tonnage trains relative to wheel-rail adhesion, slack action, wheel wear, break-in-two's, etc., I am firmly convinced that an educational program, including operational cost studies and other operational facts regarding train lengths, is the only solution to this question.—*F. G. Fisher, assistant superintendent motive power and rolling equipment, engineer of tests, Reading Company.*

A forum for railroaders who want to explore questions of importance to their industry, this column welcomes both questions and answers from readers at all levels of responsibility in the industry and associated fields. We'll pay $10 to any reader submitting a question that forms the basis for a column discussion. Address correspondence to Question and Answer Editor, Railway Age, 30 Church St., New York 7, N.Y.

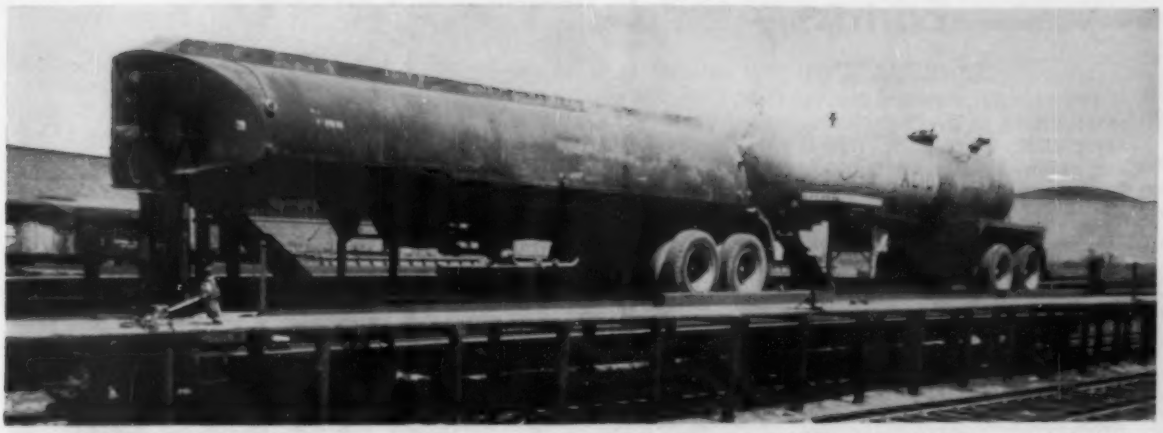
Reflectors vs. Lamps

To the Question and Answer Editor:

In recent years, a number of railroads have discarded the traditional oil marker lamps in favor of reflectorized discs or other means of indicating the rear of trains. Among the advantages cited for reflectorized discs, for example, are greater visibility, less handling hazard for personnel, and no servicing required.

With such seemingly outstanding advantages, I should like to raise the question as to why there has not been a more widespread adoption of this kind of marker. What disadvantages does it have, and what advantages do the standard marker lamps have which might possibly have been overlooked?

[*The question above was submitted by the research engineer of a major railroad, who asked that his name not be used. Although our correspondent's question is specifically concerned with reflectorized train markers, the same points could be raised with regard to switch targets and other fixed signals. Let's hear from the readers on this. Who favors reflectors, and who favors lamps? Editor.*]



35-FT BULK LIQUID TRAILER and the 28-ft corrosive liquid trailer shown here were used in one of the series of tests made by the C&NW in seeking approval to handle volatile liquids in TOFC service. AAR Bureau of Explosives will soon supervise an actual road shipment of a restricted liquid as a final test.

Tanker TOFC Is Tested by North Western

FIRST OF IMPACT TESTS leading to tentative AAR approval of piggyback handling of volatile liquids was made with the single corrosive liquid tank-trailer shown here being mounted on a TTX flat at the site of C&NW's Chicago TOFC facilities.

The Chicago & North Western will soon lessen the dangers of long distance highway transportation of inflammable and explosive materials. Recent tests by the C&NW in conjunction with the AAR Bureau of Explosives have brought tentative approval for piggyback handling of tank-truck trailers loaded with "restricted" liquids.

Impact testing of liquid-filled tanker-trailers on a standard 85-ft TTX flat were made at North Western's TOFC facilities in Chicago. Barry Rogers, director of C&NW's motor services department, said the tests promise to open the way for tank-truck shipments of so-called "restricted" liquids as well as vegetable oils, ink and other non-restricted products. "There is every reason to believe," he added, "that a tank truck carrying a so-called restricted liquid commodity can be handled more safely in piggyback rail service than on highways."

The first shipment of a "dangerous" or "explosive" commodity via tanker-on-flat-car will originate on the North Western at Chicago and will furnish the final test of the series. The AAR Bureau of Explosives will supervise the test shipment which will be handled under a rate soon to be published by the C&NW.

In one of the series of impact tests conducted during May and June of this year, two water-filled tank trailers were mounted on a TTX flat equipped with standard ACF trailer hitches. A 28-ft, MC-310, corrosive liquid trailer was filled to near capacity and had a gross weight of 45,175 lb. The companion trailer was a 35-ft, MC-303, flammable liquid tank-trailer, carrying over 6,000 gallons of water and having a gross weight of 62,175 lb.

An earlier test was made with only one corrosive liquid trailer mounted on the piggyback flat. In this the trailer domes remained open. Other tests were made with domes closed. Impacts were made at speeds up to 10.8 mph. Standard measuring devices recorded trailer movement and recoil while high speed photography recorded the surging of the tanker lading during and after impact.

The required Bureau of Explosives approval for shipment of restricted liquids in TOFC service has tentatively been given pending outcome of the actual road test to be scheduled in the near future, according to a spokesman for the railroad.

Editors Afield

CHEYENNE, WYO.

Two passive reflectors add a modern touch to the Union Pacific depot clock tower here. This is one of the repeater points in the UP's Omaha-Laramie microwave system now being installed.

Coming over on the day train from Omaha, we climbed from 1033 ft to 6060 ft in 507 miles. One hardly notices it, and I was told it is a steady grade all the way. Although the train, No. 7, left Omaha 30 min late, we arrived in North Platte 15 min early—281 miles and 9 stops later.

A nostalgic note is the UP's Big Boy steam engines standing silently on yard tracks at Council Bluffs and Cheyenne. But steam still runs up in the Iron Range. I saw some DM&IR steam-powered Mallets in operation at Proctor, Minn. Over at Two Harbors I saw some Bessemer & Lake Erie diesels that were loaned to the DM&IR some 7 or 8 years ago; they're still pulling ore trains.

One good way to see CTC in the field is to ride a rail-auto, as I did on the Great Northern's line from Brookston to Kelly Lake. It was a Chevrolet station wagon with Fairmont flanged wheels. The ride was smooth and comfortable —we ran about 35 mph on the curves and 50 mph on the tangent track. In addition to signals, we saw some deer. By installing CTC on two ore lines, the GN will be able to abandon about 40 miles of a third connecting single-track line.

Union Pacific has a 705 computer in operation, with a transistorized 7080 on order. In addition UP has ordered two 1401s to provide high speed input and output to the 7080. UP's microwave system will provide the high capacity communications network to feed the computer.

•

LAKOTA, UTAH

By using movable point frogs at an automatic interlocking here, the Denver & Rio Grande Western has raised the speed limit from 30 mph to 60 mph at its crossing with the Union Pacific. The D&RGW double-track mainline crosses a single-track UP line at a 15 deg. angle. The crossing has 131 lb rail, and the movable point frogs are operated by power switch machines.

Coming down to Denver from Cheyenne, 106 miles, I rode backward on the UP's Portland Rose. As the train heads east into Cheyenne depot, it would have to be wyed in order to run forward south to Denver. So, as the conductor said, running backward Cheyenne to Denver saves wying the train twice—once at Cheyenne, once at Denver.

Where the mainline at a yard entrance or yard lead are on a grade, the D&RGW has found a derailing switch very effective. At Minturn, Colo., "we can dump 'em in the river to keep them from running away," I was told. Instead of derails, the D&RGW uses a full turnout with two points and a frog. The power switch is dispatcher controlled, usually being lined in the reverse position (to derail). When a train is approaching, the dispatcher controls the switch to the normal position. But it does not go over unless the train is on the approach a definite time, which is longer than that required for a run-a-way car. After this time has run, the switch goes over, and the signal governing movement over the switch clears.

At Grand Junction, Colo., I saw how pre-conditioning aids in making non-stop meets in CTC territory. The dispatcher had one train pulling into a siding, and another approaching on the mainline. Before the "hole" train had cleared the main, the dispatcher positioned his switch lever normal and his mainline leaving signal lever to clear. These controls were then stored until conditions in the field were safe to permit the changes. When the field indications showed the train in the clear, the switch went normal, after which the signal cleared. Not only did such preconditioning of controls aid in a non-stop meet, but the dispatcher was able to turn his attention to other sections of his machine as soon as he had pre-conditioned. Thus he did not have to "stay at the siding" waiting for the OS light to go out indicating the train on the siding was in the clear so that he could normal the switch and clear the signal. While it takes some machine circuitry to provide pre-conditioning, the D&RGW finds it expedites train moves in CTC territory.

Robert W. McKnight
Signaling and Communications

SOUTHERN

(Continued from page 10)

procedures for bringing together "the parties interested" in any management-labor conflict. The firemen declined a previous management request to bargain separately on the fireman-off issue. In a letter signed by the chiefs of all five operating organizations, the unions contended that the rules notices (including the proposal to eliminate firemen) are "so broad and interrelated that they affect all [operating] employees."

The carriers stick to their contention that the only party interested in the proposal to eliminate firemen is the BLF&E. In a letter sent to the five operating organizations the carriers agreed to begin negotiations on proposals "covering matters of basis of pay and assignment of employees" on a joint basis. The letter also stated: "The Section 6 notice which railroads served on the Brotherhood of Locomotive Firemen and Enginemen November 2, 1959, covering their desire to eliminate requirements for use of firemen on other than steam power, does not, for purposes of the Railway Labor Act, involve any other organization."

Management has requested a separate meeting with the BLF&E bargaining team on August 30. Labor spokesmen indicate the BLF&E will again decline to meet separately with the carriers. It is expected that the brotherhoods will renew their demands to handle all pending Section 6 notices jointly following a strategy planning session planned by the heads of the five operating unions early this month.

Both sides have expressed a desire to speed up the rules negotiations, but until agreement is reached on who is included in "the parties interested" there is little hope for progress at the bargaining table.

While the featherbed fight marks time, the last operating union's wage case neared final settlement. Windup of the Switchmen's wage case should come within the next two weeks. Negotiators reached an agreement on a proposal to be submitted to the membership of the Switchmen's Union for approval. As recommended by an Emergency Board early in July the proposal calls for wage increases of 2% July 1, 1960 and 2% March 1, 1961. Recent cost of living increases are to be included in the base pay and the escalation clause is cancelled under the new agreement.

An inequity issue raised by SUNA in its wage negotiations remains unsettled. The final determination of this will be by arbitration if no agreement is reached in future discussion, but no adjustment can be effective until after November 1, 1961.

Howard C. Grayston
CNR

W. L. Smith
GN

W. B. Blix
Nordberg

J. W. Bergen
Symington Wayne

People in the News

CANADIAN NATIONAL.—In a realignment of senior executive duties at Montreal, effective Sept. 1, activities related directly to the marketing and operation of transportation services will be brought together under the executive vice president, **Norman J. MacMillan.** Mr. MacMillan's newly defined responsibilities will include jurisdiction over CNR's regional vice presidents, vice president and general manager—Grand Trunk Western, general manager—Central Vermont, vice president—sales, vice president—transportation and maintenance and general manager of express.

Stanley F. Dingle, vice president—operation, will undertake liaison work and special assignments on behalf of the president, with the title of system vice president. His former position will be abolished. Position of vice president—traffic, held by **Alex H. Hart,** will be changed to vice president—sales. **Howard C. Grayston,** assistant vice president—operation, will become vice president—transportation and maintenance, with jurisdiction over system headquarters transportation, engineering, motive power and car equipment, road transport (excluding operations of Canadian National Transportation, Ltd.), sleeping, dining and parlor car, marine services and safety departments.

Gordon M. Newby, foreign freight agent, **CNR-GRAND TRUNK,** Chicago, appointed general freight agent (sales) there, to succeed **Walter J. Gohr,** named general freight agent.

GREAT NORTHERN.—**Paul F. Cruikshank,** superintendent, Klamath di ision, Klamath Falls, Ore., transferred to the Dakota division, Grand Forks, N.D., to replace **W. J. O'Connor,** retired. **W. L. Smith,** staff assistant to the general manager, Lines East, Duluth, Minn., named to succeed Mr. Cruikshank, and in turn is replaced by **C. G. Reeder,** assistant to the trainmaster, Cascade division, Interbay, Wash.

ILLINOIS CENTRAL.—**John A. Conniff, Jr.** appointed assistant general freight agent, St. Louis.

LOUISVILLE & NASHVILLE.—**C. E. Stoecker,** miscellaneous engineer, Louisville, named special engineer there and is succeeded by **Charles T. Yarbrough,** division engineer, Mobile. **Raymond W. Pember,** assistant division engineer, Birmingham, Ala., appointed division engineer, Mobile. **N. C. Kieffer** named division engineer in charge of construction, DeCoursey, Ky. **C. L. Gatton** appointed assistant engineer, Louisville.

D. F. Crook named supervisor communications and signals, Evansville, Ind.

Philip M. Lanier appointed general solicitor; **James W. Hoeland** and **Clifford T. Coomes,** assistant general solicitors; **Clarence Raymond,** senior commerce attorney; **C. Hayden Edwards,** commerce attorney, all at Louisville. **T. E. Pinkston** named general attorney, Lexington, Ky.

George M. Timberman, general industrial agent, **Clinchfield,** Erwin, Tenn., appointed assistant coal traffic manager, L&N.

MILWAUKEE.—**James V. Kelly** appointed geologist, Chicago.

MISSOURI PACIFIC.—**L. V. Hobbs,** superintendent, Eastern division, Kansas City, Mo., transferred to the Kansas City Terminal division there, succeeding **Earl H. Campbell,** who retired July 30. **V. G. Dyer,** assistant superintendent, Nevada, Mo., succeeds Mr. Hobbs, and in turn is replaced by **G. T. Graham,** trainmaster, Coffeyville, Kan. Mr. Graham's successor is **W. B. Needham,** transferred from the Kansas City subdivision, Osawatomie, Kan. **J. M. McJannet,** trainmaster, Kansas City Terminal division, Kansas City, replaces Mr. Needham, and in turn is replaced by **J. D. Boling.**

Clarence Baker, construction engineer, St. Louis, appointed assistant chief engineer there, to succeed **William H. Giles,** who retires Aug. 1. **F. H. McGuigan,** bridge construction engineer, St. Louis, named to succeed Mr. Baker, and in turn is replaced by **J. W. Dolson.**

NEW YORK CENTRAL.—**Gerald J. Zapf,** real estate assistant, New York, appointed New York City area real estate agent, succeeding **Frank P. Tighe,** named real estate manager, Chicago. **Joseph Spina,** methods analysis department, named real estate assistant.

Supply Trade

W. B. Blix, manager, Railway Equipment Division, **Nordberg Manufacturing Co.,** Milwaukee, Wis., has been appointed vice president in charge of the division, succeeding **Henry H. Talboys,** who has been appointed consulting vice president. Mr. Talboys will devote his principal attention to research and development.

D. L. Townsend, vice president, Western sales, Symington division, **Symington Wayne Corp.,** has retired. **J. W. Bergen,** assistant vice president—sales, Chicago, named manager of Western sales. **D. L. Munro,** service engineer, Chicago, has been promoted to sales engineer.

James M. Fawcett, Western representative, named Western manager, **Railway Equipment & Publication Co.,** publishers of The Pocket List of Railroad Officials and other publications, Chicago.

Edward B. Seaton and **James A. Singmaster, Jr.** have been appointed assistant general managers, Overseas Division, **Monsanto Chemical Co.** Mr. Seaton was formerly director of operations, Overseas division, and Mr. Singmaster was a member of the corporate planning staff, both at St. Louis. **William M. Russell** will continue as European director and assistant general manager, Overseas Division.

The **J. W. Mortell Co.,** Kankakee, Ill., has been reorganized and the following officers elected: **John L. Mortell,** executive vice president and treasurer, elected president and treasurer; **D. E. Mortell** elected vice president and general sales manager; **J. W. Mortell,** vice president—manufacturing; **R. J. Mortell,** vice president and eastern sales manager; **G. R. Peterman,** secretary; **G. A. Blais,** assistant treasurer; **G. A. Peterman,** assistant secretary.

H. L. Kennedy, assistant Washington, D.C. district sales manager, **American Car & Foundry division of ACF Industries, Inc.,** has been appointed Washington district sales manager, succeeding **Howard J. Russell,** resigned.

Lawrence H. Stanley has been appointed to the newly created position of manager of marketing services for ACF Industries, Inc.

Daniel P. Brennan has been appointed technical service representative in midtown New York City by **Oakite Products, Inc.,** succeeding **Edmond Malone,** who has been transferred to New Jersey.

The following have been appointed sales representatives for ULOK cube air filters by **Union Carbide Development Co., Division of Union Carbide Corp.: Simon P. Sheerin Co.,** Indianapolis, Ind.; **Vern C. Hall Co.,** Cincinnati, Ohio; **Thermal Products Co.,** Cleveland, Ohio; **F. R. Foote, Inc.,** Albany, N.Y.; **Larad Industries,** New York City; **W. J. Sommers Co., Inc.,** Buffalo, N.Y.; and **Leonard F. Luchner Co., Inc.,** Boston, Mass.

Robert J. Landregan has been appointed assistant chief mechanical officer, **North American Car Corp.**

Highway Trailer Industries, Inc., has acquired Weber Trailer & Manufacturing Co., Los Angeles. The firm, to be operated as a wholly-owned subsidiary known as **Highway-Weber Trailer Co.,** will continue to make its present lines of special and standard truck-trailers, and also will be the manufacturing outlet for Highway's trailers and cargo-containers for West Coast truck, rail and fishyback shippers. **John T. Weber,** secretary-treasurer and general manager of Weber, named president of the new subsidiary.

OBITUARY

Roll Raymond Smith, 75, who retired in 1950 as district freight claim agent, **New York Central,** St. Louis, died July 22.

Robert Hall Smith, 72, who retired in March 1958 as president of the **Norfolk & Western,** died June 18 of a heart attack.

You Ought To Know...

Construction of the first 50-mile segment of GN's proposed crude oil pipeline, serving the Newburg, Wiley and Glenburn fields in South Dakota, will begin later this month. Linking Newburg and Minot, a 10-inch pipeline from the Wiley field to Minot and a 6-inch line from Newburg to Wiley will be completed before winter. The projected 110-mile pipeline will connect the Lignite and Newburg fields to GN's main line near Minot (RA, March 28, p. 9).

New Haven opened its new $250,000 wheel truing machine shop in New Haven, Conn., last week. Funds for purchase of the $160,000 machine and for construction of the prefabricated building that houses it were made available by a federally-guaranteed loan.

Katy's general offices at St. Louis will be housed in a new building adjacent to Baden Yard effective Aug. 1. The new location is about six miles north of the downtown area, where Katy has had its offices (in the Railway Exchange Building) for a number of years.

Political convention coverage over a Washington, D. C., radio station was sponsored by the five railroad operating brotherhoods. A variety of correspondents covered both the Democratic and Republican conventions for the unionists. The broadcasts were preceded and followed by union commercials.

Nostalgic appeal of the steam locomotive will be the subject of a forthcoming broadcast the Voice of America will beam overseas. Commentary — with background supplied by Reading 4-8-8-4 No. 2124—was recorded on a recent Iron Horse Ramble that drew 1,100 riders. Among the commentators: Railway Age Associate Editor Rod Craib.

Railroads may have an influential ally in their continuing fight for fair treatment in the matter of rail-highway grade crossing protection. In the wake of a crossing accident involving a Milwaukee Road streamliner and a semi-trailer, the Chicago Tribune urged increased use of adequate protection equipment and went on to suggest that "states, counties and townships ask themselves if they have no responsibility at grade level crossings. They build bridges over creeks and fill and excavate at great expense. If more flasher signals at crossings are needed, why should not the road builders provide them?"

Import ore for rail movement totaled 10,005,192 gross tons during the first six months of 1960—an 11.5% increase over the corresponding period of 1959. Export coal to overseas destinations during the first half of 1960 amounted to 12,568,000 net tons, a 9.4% drop from last year's comparable figure.

Ceramic-coated aluminum pistons are now being tested on an Alton Southern diesel. Object: less wear on piston rings and cylinder liners, better combustion and greater fuel economy.

AAR's Purchases & Stores Division will be moved from its present location at 17th and H streets, Washington, D. C., to 59 East Van Buren street, Chicago, effective Aug. 15. Reason for the shift: "To coordinate more effectively the work of the division."

Seaway subsidized service operated by Grace Line, Inc., need not continue, the Federal Maritime Board says. Grace Line, which got permission to provide the service in March 1959, has been seeking this year to withdraw the service on the grounds that it's hopelessly unprofitable (RA, June 13, p. 103).

C&NW's excess profits tax refund, from 1944 and 1945 overpayments, amounts to $4,182,581. North Western claims the Internal Revenue Service miscalculated interest and that the refund is short $875,447.

Nigerian transport study was started last week by a team of specialists from Stanford Research Institute. Purpose of the study is to chart the African nation's transportation requirements as related to overall economic development for the next 10 years.

Commuters on the Chicago & North Western no longer worry about the weather. Not since C&NW opened "Rainstick Jct." Here a commuter ticket is also good for the loan of an umbrella to use between station and office. The bumbershoots, unclaimed from Lost and Found, are available on a first come, first served basis. No complaints about "leakers" will be accepted.

Steel ingot production in 1960 is expected to reach 110 million to 112 million tons, the Business and Defense Services Administration predicts. Shipments of steel mill products are estimated at 78.5 million to 80 million tons. Record ingot production was 117 million tons in 1955.

The "tax shakedown" of the railroads is "inflicting such deep financial wounds that . . . our very existence as a private enterprise service is being undermined," ERPC Chairman David I. Mackie told the Huntington, W. Va., Kiwanis Club. He noted that under West Virginia's privilege tax on transportation, "railroads pay at the rate of 4%. Motor carriers pay 1½%. Air lines pay nothing. The result: among media of for-hire transportation serving West Virginia—railroads, trucks, buses, barges and airlines—the railroads pay more than 90% of the total transportation privilege tax collected."

Canadian National's historic No. 1165—a flat-valved, ten-wheeler of 1912 vintage—has joined the collection of rolling stock to be displayed at Canadian Railroad Historical Association's planned transport museum at Montreal. Presentation of the locomotive was made July 21, the 124th anniversary of the opening of Canada's first railroad.

Advertisers' Index

Bethlehem Steel Company 3
Brenco, Inc. 11
City of Philadelphia 37
Electro-Motive Div., of General Motors 19-21
Exide Industrial Div., Electric Storage Battery ..... IBC
General American Transportation Corp., Airslide Div. .. 6
General Electric Co., N.Y. Specialty Control Dept. 16, 17
Iron & Steel Products, Inc. 37
Libey-Owens Ford Co. 12, 13
Magor Car Corp. 26
Motorola Communications & Electronics, Inc. ..... IFC
Railway Maintenance Corp. ..... BC
Standard Railway Equipment Div. of Stanray Corp. 8
Trailmobile, Inc. 30
Union Switch & Signal Div. Westinghouse Air Brake .. 4
Westinghouse Air Brake Co. 24, 25

MONORAILS

by HERMANN S. D. BOTZOW, JR.

• *An authoritative book of fascinating interest to everyone concerned with the future of transportation.*

This recently published book gives an objective view of the potential of monorail transportation in the United States. Following the introductory section, which traces the history of monorail, the author discusses types, cars, track and structures, stations, wayside equipment, particular monorail characteristics, and the economics of monorail as a means of transportation.

The appendices contain detailed data on constructed and proposed monorails, car characteristics, rail cross-sections, rail supports, operating costs, and platform clearance diagrams. The bibliography is probably the most complete of any on the subject.

104 pp. 15 illus. 10 diagrams and charts. $3.95

Simmons-Boardman Books
30 Church St., New York 7, N. Y.

Please send Botzow: MONORAILS, for which I enclose $3.95.

Name .....

Street .....

City .....State .....

CLASSIFIED ADVERTISEMENTS

FOR SALE
railway equipment
Used—As Is—Reconditioned

SPECIAL OFFERING
3—Used, EMD
100-Ton, 660 H. P.
DIESEL-ELECTRIC LOCOMOTIVES
I. C. C. Condition — Immediate Delivery

RAILROAD TRACK SCALE
1—125-Ton, 32'6", Buffalo Scale Co.

Service-Tested
Freight Car Repair Parts
For All Types of Cars

Railway Tank Cars and
Storage Tanks
6,000- 8,000- and 10,000-gallon
Cleaned and Tested

IRON & STEEL PRODUCTS, INC.
"ANYTHING containing IRON or STEEL"

General 13486 So. Brainard Ave.
Office Chicago 33, Illinois
Phone: Mitchell 6-1212

Room 1608, 51C East 42nd St.
New York New York 17, New York
Office Phone: YUkon 6-4766

WANTED

Surplus or used, E.M.D. injector plunger & bushing assemblies #5227853, #5228236, .421 diameter, GM-DD Series 110 plunger & bushings and parts. Rail, 2093 East 19 Street, Cleveland 15, Ohio.

Robert W. Hunt Company
ENGINEERS
Inspection—Tests—Consultation
All Railway Equipment
General Offices:
810 S. Clinton Street
CHICAGO 7
All Principal Cities

ASSISTANT TRANSIT ENGINEER

To perform specialized and supervisory engineering work analyzing public transportation systems and operations for the City of Philadelphia. We require a bachelor's degree with an engineering major and four years of recent progressively responsible experience in analysis and evaluation of large public transit systems which has included such factors as routes, schedules, equipment, facilities and rates. Equivalent combinations of education and experience will be considered. Starting salary is $9242 per year with regular increases, liberal fringe benefits and promotion opportunity. Please send resumé to Miss Alma Goldman, Room 792 City Hall, Phila. 7, Penna.

DATA SHEETS

A 32 page booklet, "Meters and Test Equipment" covers such subjects as Basic Meter Movements, Ammeters, Voltmeters, Insulation Testers, Decibel Measurements, Oscilloscopes, and the West Test Set. A brief test of the material covered is included. The booklet is designed to give the signal and communications maintainer or helper valuable information on his most important tool—his test equipment. Available at 50 cents each from

Railway Signaling and Communications
30 Church Street, New York 7, N. Y.

Use this space for Employment Opportunities

FOR SALE

The extensive library of White & Kemble covering possibly 75 yrs. of RR statistics and mortgage maps. G. P. Montgomery, c/o Seamens Bank for Savings, 30 Wall St., New York 5.

KEEP BUYING
U.S.
SAVINGS
BONDS

Unionists on Railroad Team?

The reluctance of the operating unions to make reasonable concessions, to modernize their archaic working rules, is not doing the railroads or the unionists any good. Railroad employees, no less than the railroads themselves, are up against the competition of other forms of transportation.

Nobody on the railroads is happy with things as they are—traffic off, employment down, investment for improved service sharply reduced. Practically every other big industry manages to keep up with advancing wages by making labor-saving improvements—but, on the railroads, equating a "day" to speeds of 1916 has retarded the increased output per employee that would make present-day wage rates tolerable. And a freight-train or yard crew is overmanned with 5 or 6 men, as every railroader knows (whether he will admit it or not).

•

The Superintendents' Association recently reported the results of some questionnairing it has done among its members, and among some railroad union leaders. The questions had to do with employee attitudes and how to improve them. A majority of the respondents from the management side rated employee morale as "only fair"—or worse. A majority of the union respondents reported morale as "poor" or "worst ever seen."

To improve morale, the union respondents recommended: (1) stabilizing employment, (2) "recognizing employees as a vital part of the railroad," (3) more attention to improved service.

Most railroad management people, we believe, would be glad to give effect to the recommendations of these unionists—but they cannot do so by their own unaided action. The unions must cooperate. For instance, take the third point—that of giving more attention to improved service. The big factor in service is dependability and reasonable speed.

Both must rely heavily on frequency of service—either in industrial switching or in the movement of trains. In 1937 the wages of a 5-man crew in through freight service averaged $4.13 per hour. In 1959 the average hourly pay of a similar crew was $12.61—or more than three times the 1937 rate. In yard service a 5-man crew cost $4.36 in hourly wages in 1937, and $13.97 in 1959—an even greater percentage increase than that in road freight service. You can't afford the service frequency at $13 per hour that you could at $4 per hour.

Compared to these huge increases in hourly compensation—performance in ton-miles per hour paid for went up from 1937 to 1959 only 43% in the case of yard crews and 78% in the case of through freight crews.

•

This is a wage and cost situation the railroads just cannot live with. Present wage rates—let alone further increases—have got to be accompanied by a large increase in hourly output per employee, or the railroads cannot compete successfully. The alternative is railroad unit costs so high that railroads must "price themselves out of the market." Unless the volume of business is on the increase, higher wages mean fewer employees.

So, the laudable desire of unionists to have more stable employment is a policy that management cannot decide upon by itself. A policy of employment stabilization requires, primarily, foresight by union leaders—either to keep wage rates down, or to accept rules changes which will greatly increase the output per man-hour.

As to the unionists' concern that employees be recognized "as a vital part of the railroad"—that also, like stabilized employment and improved railroad service, is a laudable goal. But, here again, getting "recognition" and acceptance of responsibility inevitably go together. A mature member of a partnership is one who accepts his share of the responsibility to do the things necessary to enable the business to prosper. When unionists begin to show concern for increasing railroad business by helping to hold down railroad costs to make railroad service competitive, management will doubtless be glad to recognize their contribution to the restoration of industry prosperity.

Railroad employees' morale, it may well be, is at as low a level as unionists reported it to be to the Superintendents' Association. It could be quickly and decisively changed by the unionists themselves—and, probably, in no other way.

EXIDE-IRONCLAD BATTERIES MEAN MONEY SAVED

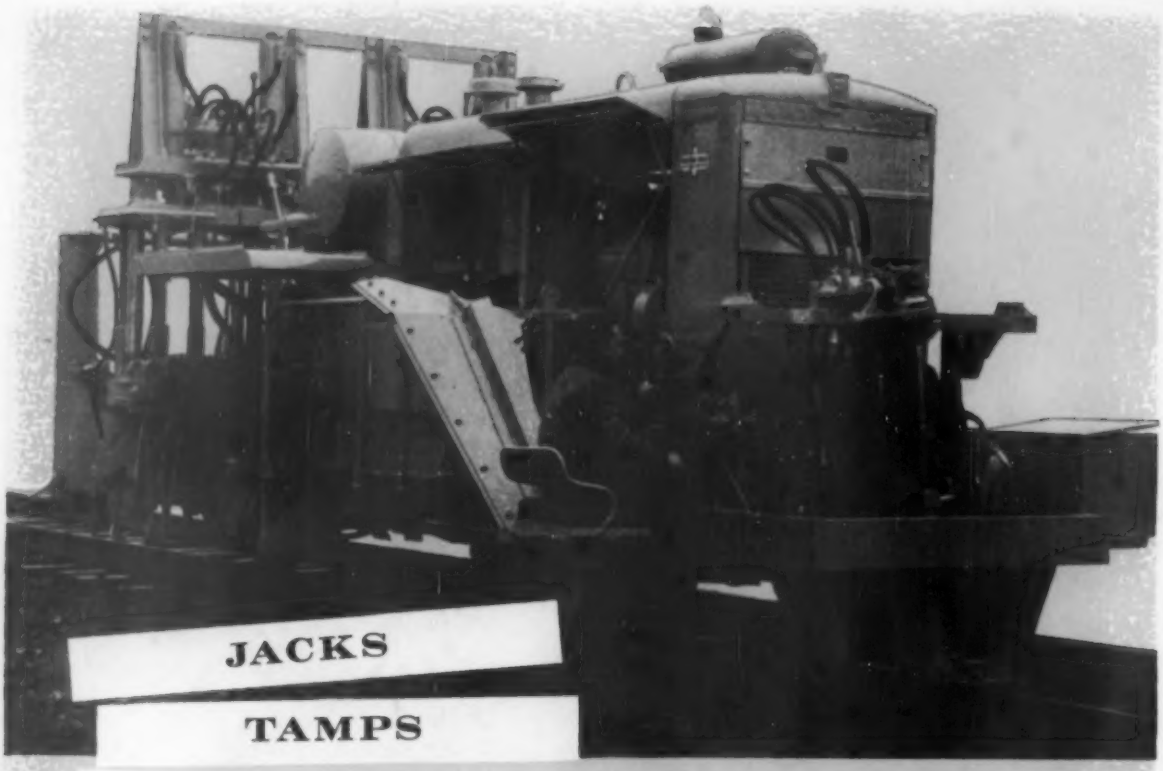
In Carlighting. You can save up to 616 lb. deadweight per car and still get the power you need with an EG Exide-Ironclad Battery. Use your fuel to pull passengers, not excess weight.

In Diesel Locomotives. New MGD Exide-Ironclad positive plate construction retains active material better—prolongs battery life. Design unlocks more power for greater economy. Batteries now need less space, give new versatility for application in different size locomotives. One size battery will fit all locomotives.

Find out how much you can save with an Exide-Ironclad Battery! Write to Exide Industrial Division, The Electric Storage Battery Company, Philadelphia 20, Pa.

Exide®

Here's the Secret. The new improved Exide-Ironclad tubular positive plate. Unlocks even more power per ounce of active material than in the past. Gives you more capacity per cubic inch of space and longer battery life for greater economy.



JACKS

TAMPS

LINES

DRESSES BALLAST

Do ALL 4 JOBS with the McWILLIAMS COMBINATION

Special tamping head, split four ways, permits jacking and tamping switches

Based on a McWilliams Production Tamper, this new unit **Jacks** track to grade determined by a surfacing device . . . **Tamps** with a 16-tool tamping head . . . **Aligns** the track, using an R.M.C. LineMaster lining head . . . and **Dresses Ballast** with hydraulically-controlled ballast wings. Write for details.

35 YEARS OF SERVICE TO THE RAILROADS

RPI MEMBER

Railway Maintenance Corporation

BOX 1888 PITTSBURGH 30, PA.